Faculty and Members
2021–2022

It is fundamental in our purpose, and our express desire, that in the appointments to the staff and faculty as well as in the admission of workers and students, no account shall be taken, directly or indirectly, of race, religion, or sex. We feel strongly that the spirit characteristic of America at its noblest, above all the pursuit of higher learning, cannot admit of any conditions as to personnel other than those designed to promote the objects for which this institution is established, and particularly with no regard whatever to accidents of race, creed, or sex.

—Louis Bamberger and Caroline Bamberger Fuld, in a letter dated June 4, 1930, to the Institute's first Board of Trustees

Cover: Emily Merchant, Visitor (2021) in the School of Social Science, and family at Welcome Day 2021. Photo: Dan Komoda
Opposite page: Conversation over lunch at the 2021 Social Science Seminar. Photo: Andrea Kane

Contents

Information contained herein is current as of February 1, 2022

Introduction

The Institute for Advanced Study is an international center for theoretical research and intellectual inquiry that provides an exceptional environment for the acceleration of ideas and knowledge. It creates time and space for individual work as well as dialogue among some 250 researchers selected from more than 100 institutions around the world by a permanent Faculty, each of whom are preeminent leaders in their fields.

Research spans four Schools—Historical Studies, Mathematics, Natural Sciences, and Social Science—and is focused on long-term and fundamental outcomes with no concern for immediate application but rather revolutionary and sustained impact. IAS provides exceptional minds with boundless opportunity to explore what is not yet known. Thirty-five Nobel Laureates, forty-two of the sixty Fields Medalists, and twenty-one of the twenty-four Abel Prize Laureates, as well as many winners of the Wolf and MacArthur prizes, have been affiliated with the Institute.

At the Institute, everything is designed to encourage scholars to take their research to the next level. Members carry out their work in a setting where human scale has been carefully maintained to encourage the sharing of ideas, serendipitous interaction, and friendship.

Located in Princeton, New Jersey, the Institute was founded in 1930 with the motto "Truth and Beauty." It is an independent educational institution that charges no tuition and relies on charitable contributions and grants for its operation. Brother-and-sister philanthropists Louis Bamberger and Caroline Bamberger Fuld established the Institute in the vision of founding Director Abraham Flexner. It was Flexner's belief that if the Institute

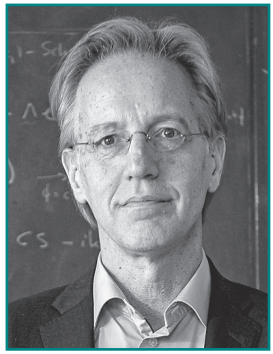
> eschews the chase for the useful, the minds of its scholars will be liberated, they will be free to take advantage of surprises, and someday an unexpected discovery, apparently leading nowhere, will be found to be an indispensable link in a long and complex chain that may open new worlds in theory and practice.

Albert Einstein, Kurt Gödel, Hetty Goldman, George F. Kennan, Erwin Panofsky, John von Neumann, and Hermann Weyl were among the first in a long line of distinguished Institute scientists and scholars to produce a deeper understanding of the physical world and of humanity.

Current research at IAS involves the following topics: pursuing a theory of everything that governs the smallest and largest phenomena in our universe; using computational tools, models, and simulations to determine the origins and

long-term fate of the universe; establishing the theoretical foundations of machine learning; reconstructing history through textual and material evidence, utilizing digital resources, climate data, and genetic information; examining facets of society previously overlooked or hidden, such as racial formation, social citizenship, and emerging scientific and technological phenomena; and developing a critical anthropology of politics and morality.

Flexner's vision has been maintained by his successors, including Robbert Dijkgraaf, the Institute's ninth Director from July 2012 to January 2022, and David Nirenberg, who begins as the tenth Director of IAS on February 1, 2022.



Robbert Dijkgraaf

Director and Leon Levy Professor (through January 2022)

Robbert Dijkgraaf is a mathematical physicist and a distinguished public policy adviser who has made important contributions to string theory and the advancement of science education. Past President of the Royal Netherlands Academy of Arts and Sciences and Past Co-Chair of the InterAcademy Council, Dijkgraaf is a recipient of the Spinoza Prize, the highest scientific award in the Netherlands, a Knight of the Order of the Netherlands Lion, and a member of the American Academy of Arts and Sciences and the American Philosophical Society. Dijkgraaf is most recently the author of *The Usefulness of Useless Knowledge* (Princeton University Press, 2017) in which he and IAS founding Director Abraham Flexner articulate how essential basic research and original thinking are to innovation and societal progress, a belief that has informed the mission of the Institute for nearly ninety years.

David Nirenberg

Director and Leon Levy Professor (from February 2022)

David Nirenberg is a historian and author, recognized for wide-ranging scholarship on the interaction of Christians, Jews, and Muslims. His research provides timely insight into discussions of racism, Anti-Semitism, and Christian-Muslim relations. At the University of Chicago, Nirenberg served as founding director of the Neubauer Collegium for Culture and Society, Dean of the Social Sciences, Executive Vice Provost, and Interim Dean of the Divinity School. As an administrator, he established numerous collaborations to cultivate knowledge across disciplinary boundaries. Nirenberg is a member of the American Academy of Arts and Sciences and Medieval Academy of America. His most recent book, co-authored with his father (Ricardo Nirenberg) is *Uncountable: A Philosophical History of Number and Humanity from Antiquity to the Present*, which seeks to understand the powers and limits of the sciences and the humanities. He is currently at work on a history of racial thought in Judaism, Christianity and Islam.

School of Historical Studies

Administrative Officer: Danette Rivera

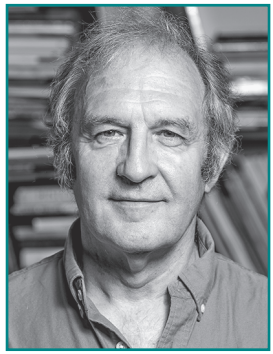
The School of Historical Studies was established in 1949 with the merging of the School of Economics and Politics and the School of Humanistic Studies. It bears no resemblance to a traditional academic history department as it brings together disciplines that are normally isolated in separate departments in traditional research universities. The School supports all inquiry for which historical methods and approaches are appropriate throughout the humanistic disciplines, from socioeconomic developments, political theory, and modern international relations, to the history of art, science, philosophy, music, and literature. In geographical terms, the School concentrates primarily on the history of Western, Near Eastern, and Asian civilizations, with emphasis on Greek and Roman civilization, the history of Europe (medieval, early modern, and modern), the Islamic world, and East Asia, but it also promotes research in areas beyond the scholarly interests of its Faculty. The School has supported scholars whose work focuses on other regions, including Central Asia, India, Africa, and the Americas.

The Members of the School represent a variety of nationalities and career stages, with a continually increasing number of young researchers and scholars from less privileged countries. The Faculty and Members of the School do not adhere to any one point of view but practice a range of methods of inquiry and scholarly styles, both traditional and innovative, ranging from the edition of texts and the analysis of images to cooperations with the social and natural sciences. Uniquely positioned to sponsor work that crosses conventional departmental and professional boundaries, the School actively promotes interdisciplinary research and cross-fertilization of ideas. It thereby supports research that often is not possible in other academic environments and encourages the creation of new historical enterprises.

Suzanne Conklin Akbari

Professor · Medieval Studies

Suzanne Conklin Akbari has expanded the range and methods of exploring texts from the Middle Ages, pushing the boundaries of traditional readings and exploring shared histories. Her research has traced the evolving relationship between sight and knowledge as manifested in a range of poetic texts, explored the relationship between Islam and Christianity, challenged the notion of medieval European literature's insularity, and highlighted the influence of Arabic poetry, music, and philosophy. She is currently working on a survey of metaphor and metamorphosis as they were understood in England and France circa 1400, and an examination of how premodern people saw themselves situated in history.



Yve-Alain Bois

Professor · Art History

A specialist in twentieth-century European and American art, Bois is recognized as an expert on a wide range of artists, from Henri Matisse and Pablo Picasso to Piet Mondrian, Barnett Newman, and Ellsworth Kelly. Bois is currently working on several long-term projects, foremost among them the five-volume catalogue raisonné of Ellsworth Kelly's paintings and sculptures, the second of which was published in 2021.

Angelos Chaniotis

Professor · Ancient History and Classics

Angelos Chaniotis is engaged in wide-ranging research in the social, cultural, religious, legal, and economic history of the Hellenistic world and the Roman East. The author of many books and articles and senior editor of the *Supplementum Epigraphicum Graecum*, he has worked on war, religion, communicative aspects of rituals, and strategies of persuasion in the ancient world. His current research focuses on emotions, memory, identity, the history of the night, and the history of Aphrodisias (Asia Minor). He is the co-director of the archaeological excavation of Lyktos on Crete.

Nicola Di Cosmo

Luce Foundation Professor in East Asian Studies · East Asian Studies

Nicola Di Cosmo's main field of research is the history of the relations between China and Inner Asia from prehistory to the modern period. Within that broad area, he has published on the early history of China's relations with steppe nomads, and on Mongol and Manchu history, and he has edited several books, including *Military Culture in Imperial China* (2009) and *The Cambridge History of Inner Asia* (2009). His most recent works explore the use of proxy data from climatology and other palaeosciences in the study of the history of China and Central Asia, with special reference to early Eurasian nomads, the Mongol empire, and the Qing dynasty.

Myles W. Jackson

Professor · History of Science

Myles W. Jackson, a historian of science, explores the intersections between science, technology, aesthetics, history, and society. The breadth of Jackson's research extends from the artisanal production of scientific knowledge in nineteenth-century Germany to molecular biology and physics, intellectual property and privacy issues, knowledge sharing, race and genomics, bioengineering, and the interactions between musicians, natural scientists, and radio engineers. His scholarship, noted for its cross-disciplinary methodology, interweaves economic, commercial, and scientific insights, pushing the boundaries of the field to establish fresh lines of inquiry.

Sabine Schmidtke

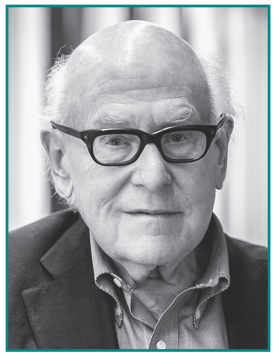
Professor · Islamic Intellectual History

Sabine Schmidtke is a scholar of Islamic intellectual history whose pioneering research has transformed perspectives on the interrelations and connections among different strands of intellectual inquiry—across time, place, religions, and philosophical schools. Schmidtke is currently working on the history of Islamic thought in the post-classical period (thirteenth to nineteenth century), with a focus on reconstructing the textual heritage and the intellectual import of the Islamic intellectual world, from Iran and Central Asia to Turkey and Yemen. She is also engaged in a comprehensive study of the Muslim reception of the Bible, a topic on which she has published extensively over the past years.

Francesca Trivellato

Andrew W. Mellon Professor · Early Modern Europe

A leading historian of early modern Italy and continental Europe, Francesca Trivellato has made significant and groundbreaking contributions to our understanding of the organization and culture of the marketplace in the pre-industrial world. Trivellato's original and imaginative research has revitalized the study of early economic history, and her influential work on cross-cultural trade intersects the fields of European, Jewish, Mediterranean, and global history, religion, and capitalism.



Glen W. Bowersock

Professor Emeritus · Ancient History

Glen W. Bowersock is an authority on Greek, Roman, and Near Eastern history and culture as well as the classical tradition in modern literature. He uses his exceptional knowledge of classical texts in many languages, together with inscriptions, coins, mosaics, and archaeological remains, to illuminate the mingling of different cultures and to draw unexpected and revelatory conclusions. His research interests include the Greek East in the Roman Empire and late antiquity as well as pre-Islamic Arabia.

Caroline Walker Bynum

Professor Emerita · European Medieval History

Caroline Walker Bynum's work has been instrumental in introducing the concept of gender into the study of medieval Christianity. Her books have created the paradigm for the study of women's piety that dominates the field today and helped propel the history of the body into a major area of premodern European Studies, and several of her essays are widely cited in discussions of comparative history. Her recent book *Dissimilar Similitudes* (2020) radically reinterprets the nature of Christianity on the eve of the reformations of the sixteenth century, exploring theoretical problems concerning questions of historical comparison. She is currently continuing to work on Christian devotional objects from a comparative perspective.

Patrick J. Geary

Professor Emeritus · Medieval History

Patrick J. Geary's work extends over a vast range of topics in medieval history, both chronologically and conceptually —from religiosity and social memory to language, ethnicity, social structure, and political organization. He has directed the St. Gall Plan Project, an internet-based initiative funded by the Andrew W. Mellon Foundation that provides tools for the study of Carolingian monasticism. Currently, Geary is leading a major project that studies the migration of European societies north and south of the Alps through the analysis of ancient DNA in Longobard-era cemeteries in Hungary and in Italy. He is Co-Principal Investigator of a European Research Council Synergy Grant project integrating genetic, archaeological, and historical perspectives on Eastern Central Europe in order to understand the impact of migrations and mobility on the population of the Carpathian Basin from 400–900 C.E.

Jonathan Israel

Professor Emeritus · Modern European History

Jonathan Israel's work is concerned with European and European colonial history from the Renaissance to the eighteenth century. His recent work focuses on the impact of radical thought (especially Spinoza, Bayle, Diderot, and the eighteenth-century French materialists) on the Enlightenment and on the emergence of modern ideas of democracy, equality, toleration, freedom of the press, and individual freedom.

Heinrich von Staden

Professor Emeritus · Classics and History of Science

Heinrich von Staden has written on a variety of topics in ancient science, medicine, philosophy, and literary theory, from the fifth century B.C. to the fifth century A.D. Drawing on a wide range of scientific, philosophical, and religious sources, he has contributed to the transformation of the history of ancient science and medicine, particularly of the Hellenistic period. His current projects include a book on Erasistratus (one of the two early pioneers of human dissection), a study of the role of animals in ancient scientific theories and practices, and further work on the "semantics of matter" in ancient science.

Ken Alder

History of Science · Northwestern University

Funding provided by the Andrew W. Mellon Foundation Fund

During his year at IAS, Ken Alder will be working on his book project, "Lives of the Machines," a history of technology in the form of ten memoirs by artificial beings—from a Sumerian balance-weight to the genomics revolution—each of which casts light on the human beings who designed, made, and used it.

Andrew Amstutz

History of Science, History of South Asia · University of Arkansas at Little Rock · *f*

AMIAS Member

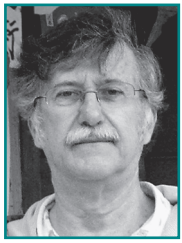
Andrew Amstutz's work focuses on the intertwined histories of science, technology, and Muslim politics in South South Asia. While at IAS, he will be completing a book that explores how experiments with Urdu print technologies and literary genres shaped the production of scientific learning across the changing borders of modern South Asia.

Hassan Farhang Ansari

Islamic Law and Theology · Institute for Advanced Study · *vp*

Funding provided by the Gerard B. Lambert Foundation

Hassan Farhang Ansari focuses on the study of Islamic theology, philosophy, law, and legal theory.



Robert James Antony

Chinese History · Shandong University · *v/f*

Funding provided by The Gladys Krieble Delmas Foundation

Robert James Antony's research focuses on China's history from the bottom up. Applying the methods of history, anthropology, and folk studies, Antony's research examines maritime history, history of crime, historical anthropology, and history of folk religion in China.

Ana Lucia Araujo

Atlantic Slavery, Memory, Material Culture · Howard University · *s*

Funding provided by The Gladys Krieble Delmas Foundation

Ana Lucia Araujo will be working on her book "The Gift: How Objects of Prestige Shaped the Atlantic Slave Trade and Colonialism." The book explores how material culture, especially objects of prestige, shaped the exchanges between Africans and Europeans in the era of the Atlantic slave trade and colonialism.

Samuel Baker

Ancient Greek Philosophy · University of South Alabama · *f*
The Andrew W. Mellon Foundation Fellowship for Assistant Professors

Samuel Baker specializes in the philosophy of Aristotle. While at IAS, he will be writing a book on Aristotle's account of truth as the good of the intellect.

Audrey Becker

Late Antiquity, Early Byzantine Empire · Université de Lorraine · *v/f*

Audrey Becker is interested in late antiquity, Early Byzantine period and Early Medieval period. She is currently writing a book about the performance of power at the Roman imperial courts, both in Ravenna and Constantinople, and at the courts of the Early Medieval kingdoms from an anthropological and sociological point of view.

Renate Blumenfeld-Kosinski

Medieval French Literature and Religious History · University of Pittsburg · *v/f*

Renate Blumenfeld-Kosinski's work encompasses medieval French literature and religious history. At IAS, she is working on a new project on visionary women and apocalypticism.

Andrea Bohlman

Sound Studies, Musicology, Ethnomusicology · The University of North Carolina at Chapel Hill
Edward T. Cone Member in Music Studies

Andrea Bohlman will be writing an interdisciplinary history of tape recording, "Magnetic Fields: Tape and the Sounding of Place." Tape tangles the competing historical narratives of sound recording, critiqued as technologies of colonial might or celebrated as means toward decentralized music industries and subversive political work.

Cédric Brélaz

Ancient Studies, Ancient History · Université de Fribourg · *s*
Funding provided by the Fund for Historical Studies

Cédric Brélaz is writing a monograph on the various forms of popular participation in the political life of Greek cities from the beginning of Rome's interference in the East until late antiquity. His project aims to reintegrate the period 200 B.C.E. to 500 C.E., frequently overlooked by scholarship, into the broader history of democracy.

Cemil Bülbül

Ancient History

Cemil Bülbül studies the ancient Near East region, including ancient Mesopotamia. Bülbül generally focuses on Semitic tribes, with published research on Akkadian, Amorites, and Aramean migrations. In recent work, Bülbül examined all the migration movements that took place in the ancient ages in connection with these migrations.

Pınar Bülbül

Anatolian History · Kahramanmaraş Sütçü İmam Üniversitesi · *v*

Pınar Bülbül studies the ancient Anatolian geography, including ancient Anatolian cultural history. Generally, she focuses on ancient Anatolian and Mesopotamian laws and their comparison with today's modern laws.

Delia Casadei

Music History, Sound Studies · University of California, Berkeley · *s*

The Andrew W. Mellon Foundation Fellowship for Assistant Professors

Delia Casadei is interested in the ways in which non-semantic aspects of the voice—yelps, gibberish, hiccups, raspberries, and, most of all, laughter—are handled, represented, and preserved through music, writing, and sound recording. She is working on a monograph entitled "Risible Creature: Sound Reproduction at the Limit of Language."

Celia Chazelle

Early Medieval History, History of Race · The College of New Jersey

Funding provided by the Fund for Historical Studies

While at IAS, Celia Chazelle will research and write a monograph tracing the story of Gregory the Great's encounter with "white" and "beautiful" English slaves from the early 700s to the present. Chazelle hopes to elucidate the continuities as well as changes, through the centuries, in Western attitudes toward somatic whiteness.

Peter Hewitt Christensen

History of Art and Architecture · University of Rochester · *s*

Funding provided by the Patrons' Endowment Fund

Peter Hewitt Christensen's project at IAS is "The Architectural Patent: Inventing Modernity."

Rosanna Dent

History of Science, Modern Latin America · New Jersey Institute of Technology and Rutgers University in Newark

Elizabeth and J. Richardson Dilworth Fellow

Rosanna Dent's work focuses on the politics and affects of research relationships. Her current book project, "Studying Indigenous Brazil: Moral Economies of Research in A'uwe-Xavante Territory," combines historical, ethnographic, and community-based methods to explore the human sciences and their afterlives in Indigenous communities.

Abbey Ellis

Museum Studies and Classical Archaeology · *v/s*

Abbey Ellis's work is interdisciplinary but united by a common material: plaster. She researches the use of plaster in ancient statuary, and how modern preconceptions of the material color the interpretation of sculptures produced in it. She is also interested in the value(s) associated with more modern plaster casts. At IAS, Ellis will be completing an edited volume on the subject of ancient plaster to be published by the British Academy, and researching a collection of modern plaster casts of ancient coins.

Christopher Athanasious Faraone

Classics, Ancient Religion, Medicine · The University of Chicago · *f*

William D. Loughlin Member

Christopher Athanasious Faraone's interests are Ancient Greek poetry, religion, and magic. Recent works include *Transformation of Greek Amulets in Roman Imperial Times*, and *The Greco-Egyptian Magical Formularies*. His project at IAS will be "Magical Recipes beyond Egypt: Scribes, Artisans and Sorcerers in the Wider Roman World."

Douglas Flowe

Race, Carceral Studies, and Criminality · Washington University in St. Louis

The Andrew W. Mellon Foundation Fellowship for Assistant Professors

Douglas Flowe's current book project, tentatively titled "Shadows and Sunlight: Race, Power, and Protest in America's Mid-Century Carceral State," examines the Jim Crow origins of the logic and apparatuses of mass incarceration through a study of Black men and imprisonment in early-twentieth-century New York.

Jérémie Foa

Early Modern History · Aix-Marseille Université

Funding provided by the Florence Gould Foundation Fund

Jérémie Foa is a lecturer at Aix-Marseille Université and works on the Wars of Religion in sixteenth-century France. His latest book, *Tous ceux qui tombent: visages du massacre de la St-Barthélemy*, focused on the anonymous victims of 1572. During his stay at IAS, he will work on a book about the killers of this massacre.

Patricia Gaborik

European Cultural History · Università della Calabria · *s*
George F. Kennan Member

Patricia Gaborik is a cultural historian of interwar Italy and Europe. While at IAS, she will be working on her new book project, a study of activist anti-fascist theatrical performance in Europe and beyond in the mid-to-late 1930s.

Lucia Galli

Tibetan Studies · Centre de Recherche sur les Civilisations de l'Asie Orientale, École Pratique des Hautes Études, Paris
Friends of the Institute for Advanced Study Member

Lucia Galli's current project examines the development of the north-bound trade of cotton textiles along the Indo-Tibetan border in the first half of the twentieth century. Her research interests include Tibetan biographical writing and narrative literature, borderland studies, socio-economic history, and cross-border trade flows.

Paul Galvez

Art History · *v*

Paul Galvez is a historian of modern art from its historical emergence to the present. Galvez's research interests range broadly from realist painting to the Russian avant-garde to contemporary abstraction.

Nina Glibetic

Liturgical Studies · University of Notre Dame · *v*

Nina Glibetic studies medieval Christian liturgy and religious culture in the Eastern Mediterranean world. She works through an inter-disciplinary lens, drawing from medieval studies, theology, Byzantine and Slavic studies, and gender theory.

Asaf Goldschmidt

History of Medicine in China · Tel Aviv University
Founders' Circle Member, in recognition of Georg Albers-Schönberg and in memory of Ernst Albers-Schönberg

Asaf Goldschmidt is interested in the history of medicine in China, especially in the history of clinical practice and various aspects of drug therapy (such as pharmacies, drug trade and markets, efficacy, and materia medica literature).

Karen B. Graubart

Latin American History · University of Notre Dame · *f*
Funding provided by the Fund for Historical Studies

Karen Graubart studies Indigenous and Black experiences in early colonial Latin America. She has examined the lives of Indigenous women in Peru, as well as Muslim, Jewish, Indigenous, and African uses of the "republic" as self-governance in Seville and Lima. Her new book looks at collective action in Black and Indigenous communities in Panama.

Byron Ellsworth Hamann

Anthropology, History, Art History · The Ohio State University
Felix Gilbert Member

Byron's research focuses on the art and writing of pre-Hispanic Mesoamerica and the connections linking the Americas and Europe in the early modern "Mediterratlantic" world. While at IAS, he will study the visit to Rome in April 1529 of four Native American ambassadors from what is now Mexico—a Rome still in ruins after the Sack of 1527.

Chunwen Hao

Chinese History · Capital Normal University
Roger E. Covey Member in East Asian Studies

Chunwen Hao's primary research interests are Dunhuang manuscripts and Buddhism in China. Hao's current work includes a project on Dunhuang documents kept in the U.K. and primary sources related to social history, as well as a study of notes and commentaries on Buddhist scriptures in Dunhuang manuscripts (ca. 500–1000).

Kaja Harter-Uibopuu

Ancient Greek Law, Greek Epigraphy · Universität Hamburg · *v/s*

Kaja Harter-Uibopuu is interested in funerary customs in Hellenistic and Roman Asia Minor. This knowledge—between local laws and imperial administration—is mainly based on inscriptions. Epitaphs not only contain information regarding the memoria of the deceased, but also his or her directives on the use of the grave as well as its protection.

Matthew Hersch

History of Technology · Harvard University · *v*

While at IAS, Matthew Hersch will research and write on the history of NASA's Space Transportation System (the "Space Shuttle").

Aaron Hershkowitz

Ancient History, Epigraphy · Institute for Advanced Study · *ra*

Aaron Hershkowitz manages the Krateros Project to digitize the Institute's collection of epigraphic squeezes. He is also working on a comprehensive assessment of those political leaders in classical Athens who are labeled "demagogues" and their role in fiscal administration and initiation of policy.

Joshua Howard

Modern Chinese History · University of Mississippi · *v/s*

Joshua Howard is a historian of modern China working on the first study of the Chinese Communist press and its relationship to social change and labor during the Second Sino-Japanese War (1937–45) and postwar movement.

Ayesha A. Irani

Islam in South Asia · University of Massachusetts Boston

Patricia Crone Member

Ayesha A. Irani is a scholar of Islam in South Asia, with a particular interest in the early modern Islamic Bangla literature of Bengal and Arakan. At IAS, she is working on writing a literary history of Sufism in early modern and colonial Bengal.

Maya Jasanoff

History · Harvard University · *f*

George F. Kennan Member

Maya Jasanoff is an imperial and global historian. While at IAS, she will be working on a book about the human preoccupation with ancestry, from the origins of Homo sapiens to the genetic tests of today.

Christopher P. Jones

Classical Philology and History · Harvard University · *ra*

Christopher P. Jones is interested in Greek and Latin authors, especially of the period 1–300 C.E., Greek and Roman history of the same period, and Greek epigraphy.

Nathaniel Barrett Jones

Art History · Washington University in St. Louis
Agnes Gund and Daniel Shapiro Member

Nathaniel Barrett Jones's primary research focuses on the intersections of artistic production, art theory, and social practice in the ancient Mediterranean world. He is currently working on a book examining the intertwining of time and space in the creation and reception of Roman art, in a variety of media, from the Republic to Late Antiquity.

Emily Kadens

Premodern European Legal History · Northwestern University · *s*
Funding provided by the Fund for Historical Studies

Emily Kaden's book project uses the archival records of the English courts of equity to study commercial fraud and cheating in early modern England. The project also examines the difficulty legislation, courts, legal doctrine, and private contracts had in successfully preventing and punishing commercial dishonesty.

Grigory Kessel

Syriac Studies, Ancient Medicine, Manuscripts · Austrian Academy of Sciences and The University of Manchester
Funding provided by the Herodotus Fund

Grigory Kessel's current research interest is the study of Syriac medical literature, particularly the unique Syriac translation of the late antique commentary on Book 6 of the Hippocratic "Epidemics"—the original Greek text that was composed sometime towards the end of the fifth century in Alexandria is lost.

Mansooreh Khalilizand

Islamic Philosophy · University of Münster · *v/s*

In addition to teaching philosophy in the Islamicate world and Kalām, Mansooreh Khalilizand is currently working on the philosophy of Ṣadr al-Dīn Šīrāzī (Mullā Ṣadrā). Her research focuses on Ṣadrā's ontology.

Diana Kim

Politics · Georgetown University
Hans Kohn Member

Diana Kim's research addresses modern state formation, colonialism, and the political construction of vices and vulnerability. At IAS, she will be writing a book on untouchability, which explores the making of a transnational world of untouchable groups in East, Southeast, and South Asia over the past two hundred years, and its hidden contours today.

George A. Kiraz

Ottoman History of Religious Minorities, Syriac Studies · Beth Mardutho: The Syriac Institute · *ra*

George Kiraz is working on Ottoman Garshuni documents from the Mardin Patriarchal Archive dating to the late nineteenth century. These are documentary petitions addressed to the Syriac Orthodox Patriarchs who resided in Deir al-Zaʿfarān (Monastery of the Saffaron).

Yukiko Koga

Anthropology of Post-Imperial Entanglements · Yale University

Willis F. Doney Member

Yukiko Koga's research explores emerging moral and legal landscapes for post-imperial and post-colonial reckoning in East Asia today as contemporary generations wrestle with the history of settler colonialism, forced migration, and slavery, decades after the formal end of Japanese imperial violence.

Whitney Laemmli

History of Science and Technology · Carnegie Mellon University

The Andrew W. Mellon Foundation Fellowship for Assistant Professors

Whitney Laemmli is a historian of modern science and technology in the United States and Europe. During her year at IAS, Laemmli will focus on her current book project, a history of how and why human bodily movement became a central object of scientific, political, and popular concern over the course of the twentieth century.

Peter G. Lake

Early Modern English History · Vanderbilt University

Funding provided by the Andrew W. Mellon Foundation Fund

Peter G. Lake is interested in the nature and impact of religious change and conflict in post-Reformation England. His most recent books are *Bad Queen Bess*, *How Shakespeare Put Politics on the Stage*, *Cheshire on the Eve of Civil War*, and *Hamlet's Choice*. While at the Institute, he will work on a study of a family: the Moretons of Moreton Hall.

Feng Li

History and Archaeology of Early China · Columbia University

Starr Foundation East Asian Studies Member

Feng Li's current research aims to make early China a part of a comparative approach to the ancient world, and to make that ancient world a basis for understanding early China. Li's previous works focused on political and institutional history. His new project at the IAS investigates the economic activities and economic institutions of the late Bronze Age.

Ethan Lewis Menchinger

Ottoman History · The University of Manchester · *s*
Patricia Crone Member

Ethan Lewis Menchinger is interested in how empires merge political, historical, and theological thinking into exceptionalist narratives. While at IAS, he will be researching exceptionalism in the Ottoman realm—pervasive views about sacral time, eschatology, and the empire's supposedly unique role therein.

Naphtali S. Meshel

Hebrew Bible · Princeton University · *v/s*

Naphtali S. Meshel's research focuses on the Hebrew Bible in its ancient Near Eastern contexts, and on its early interpreters. Meshel has a special interest in Levitical legal literature, and in the use of intentional ambiguity as a poetic device in Wisdom Literature and in prophecy.

Shiva Mihan

Art of Early Modern Perso-Islamic Manuscripts · Harvard Art Museums
Funding provided by the Herodotus Fund

Shiva Mihan's research is focused on the arts of the book and text transmission in the 15th century. Her forthcoming book, *Prince Baysunghur's Library: Patronage and Manuscript Production in Timurid Iran*, employs aesthetic analysis and art historical interpretations in the context of history by highlighting the relationship between text and image. It emphasizes the previously neglected value of textual content in outlining the methodology and scholarship behind new recensions commissioned by the patron.

Maureen Miller

Medieval History · University of California, Berkeley · *f*
Elizabeth and J. Richardson Dilworth Fellow

Maureen Miller's research focuses on the medieval church, particularly in Italy. Presently, Miller is writing a book on changes in forms and practices of record keeping (chiefly the transition from charters to registers) called the "documentary revolution," through a comparison of developments in Città di Castello and Cava de'Tirreni.

Takashi Miura

Japanese Religions · The University of Arizona · *s*
Starr Foundation East Asian Studies Member

Takashi Miura is working on a monograph on the history of deified protest martyrs in early modern Japan (1600–1868). This project highlights the veneration of protest martyrs as a new religious current in early modern Japan while also reflecting on the intersection between protest movements and religious practices more broadly.

Iris Montero-Sobrevilla

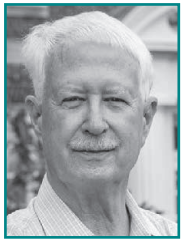
History of Science, Colonial Latin America · Brown University · *f*

Iris Montero-Sobrevilla is a historian of early modern science and Colonial Latin America. While at IAS, she will be starting a project on silver and the Christian rhetoric of extraction from the fifteenth-century Caribbean to twentieth-century North America.

Melissa Moreton

History of the Book, Global Middle Ages · Institute for Advanced Study · *ra*

Melissa Moreton is a scholar of the history of the book, particularly interested in the development and exchange of early manuscript technologies across Eurasia and Africa. She is working closely with the Book and the Silk Roads Project, organizing symposia on global manuscript culture, planning exhibitions, and editing publications.



Robert S. Nelson

Byzantine Art and Its Later Reception · Yale University

Funding provided by the Fund for Historical Studies

Robert S. Nelson is working on a history of an illuminated Greek manuscript from the eleventh to the eighteenth century, and from Constantinople to Trebizond, Rome, and Florence.

Luther Obrock

Sanskrit, South Asian Literature and History · University of Toronto Mississauga

Funding provided by the Herodotus Fund

Luther Obrock's research focuses on the religious, political, and intellectual history of Sanskrit literature in second-millennium South Asia.

Esen Ogus

Classical Archaeology and Art · The College of New Jersey · *ra*

Esen Ogus's research interests include Roman and late antique art and visual culture, social history, and archaeological method and theory. While at IAS, she will work on her second book, which is on the agency of portrait statues, and the "entanglements" of humans and statues in late antiquity (fourth to seventh centuries C.E.).

Eleftheria Pappa

Mediterranean and Classical Archaeology

Funding provided by the Hetty Goldman Fund

Eleftheria Pappa is interested in documenting social and cultural transformations in the ancient Mediterranean using archaeological evidence. While at IAS, she will research the social factors that contributed to the seemingly paradoxical visual ridicule of the divine in classical art, using case studies from Greece and overseas.

Scott Anthony Pearce

Medieval East Asian History · Western Washington University · *f*

Scott Anthony Pearce is examining the regimes that emerged from out of the collapse of the Han, which paved the way for emergence of new forms of empire in East Asia, culminating in the Tang.

Gabriele Pedullà

Intellectual History, Political Thought · Università di Roma Tre · *v/s*

Gabriele Pedullà is interested in Renaissance political thought, the history of the European novel (and short story), and, more generally, the relationship between literature and politics. During his stay at IAS, he plans to write a short introduction to Machiavelli to be published in 2023 by Columbia University Press.

Jillian Porter

Russian Cultural History · University of Colorado · *f*

George F. Kennan Member

Jillian Porter's project at IAS is "The Art of the Queue: From the Revolution to Putin."

David Potter

Roman History · The University of Michigan

Founders' Circle Member, in recognition of Deborah Lunder and Alan Ezekowitz

While at the Institute, David Potter will complete a book on Julius Caesar and the destruction of the Roman democracy.

f First Term · *s* Second Term · *m* Long-term Member · *v* Visitor · *vp* Visiting Professor · *ra* Research Associate

Gabriel Radle

Liturgical Studies, Byzantine Studies · University of Notre Dame
George William Cottrell, Jr. Member

Gabriel Radle specializes in early and medieval Christian liturgy. His research examines the practice of Christianity through comparative readings of liturgical manuscripts and other sources across traditions. His project at IAS concerns the medieval rites of passage that marked stages of childhood development in the Byzantine world.

Ramnarayan Singh Rawat

South Asia, Liberalism, Race and Caste · University of Delaware · *f*
George F. Kennan Member

At IAS, Ramnarayan Singh Rawat will complete his book manuscript, "The Language of Liberalism: The Dalit Public Sphere in Late British India," which intervenes within the debates on liberalism and empire by introducing uniquely Hindi liberal concepts created by Dalit poet-activists to interpret core ideas relating to representative government.

Ann Reynolds

Art History · The University of Texas at Austin
Funding provided by the Ruth Stanton Foundation Fund

Ann Reynolds will be working on "Imagining an Altogether: Cinema, Surrealism, and New York 1940–1970," a history of intergenerational relationships among New York artists, writers, and filmmakers ca. 1940–1970 that were shaped by shared, if heterogeneous, commitments to Surrealism and its legacy, primarily through an engagement with film.

Valentina Sagaria Rossi

Zaydi Manuscript Tradition, Arabic Codicology · Accademia Nazionale dei Lincei · *ra*

Valentina Sagaria Rossi has been working on ZMT (Zaydi Manuscript Tradition), and particularly on the Italian collections of Arabic Yemeni manuscripts. Related to this project, Sagaria Rossi is also focusing research on the network of correspondences of Islamist and Arabist scholars from the late nineteenth to the first half of the twentieth century.

Sayuri Guthrie Shimizu

History · Rice University · *f*
Martin L. and Sarah F. Leibowitz Member

Sayuri Guthrie Shimizu is a historian of the United States' relations with the wider world, with a particular emphasis on US–East Asian relations since the mid-nineteenth century. Her current book project explores the making of the North Pacific as a historical space for capitalist development, human mobility, and sovereignty claims.

Asheesh Kapur Siddique

Early America, Early Modern World · University of Massachusetts
The Andrew W. Mellon Foundation Fellowship for Assistant Professors

While at IAS, Asheesh Kapur Siddique will be completing a book on the relationship between knowledge and governance in the early modern British Atlantic and Asian worlds.

Karen Sonik

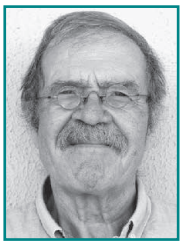
Cultural History, History of Art · Auburn University
Funding provided by the Hetty Goldman Fund

Karen Sonik is a cultural historian whose interdisciplinary work focuses on themes of metamorphosis and identity. Her current book project draws on developing research into Near Eastern emotions, senses, and aesthetics to explore the rise of homo urbanus at the dawn of urban civilization.

Stephen V. Tracy

Greek History and Epigraphy · The American School of Classical Studies in Athens · *ra*

Stephen V. Tracy is helping English and Australian colleagues prepare a new edition of Athenian decrees of the late fourth to third century B.C.E. He is also working on Athenian letter cutting of the second half of the fifth century B.C.E. and on the hands of the so-called "Athenian Tribute Lists."



Thomas Maria Weber-Karyotakis

Archaeology of the Near East · German-Jordanian University
Gerda Henkel Stiftung Member

Thomas Maria Weber-Karyotakis has published various books on Greek and Roman metalware. He directed several field surveys and excavations in Syria, Jordan, Lebanon, Libya and Yemen. At IAS, he is working on a corpus of metal sculpture from the Hellenistic to the late Roman periods in Syria, Palestine, and the Arabian Peninsula.

Gavin Williams

Sound Studies, Musicology · University of California, Berkeley · *v/s*

While at IAS, Gavin Williams will be writing a book about the history of shellac discs entitled "Disc Natures: Perspectives on a Global Medium."

Anna Patricia Wilson

Medieval Literature, Fan Studies · Harvard University
Willis F. Doney Member

Anna Patricia Wilson is interested in the literature of late medieval western Europe, fanfiction, popular medievalisms, and queer theory. During her year at IAS, Wilson will be completing a book on fannishness in late medieval reading.

David Wilton

Linguistics, Medieval Literature · v

David Wilton's work focuses on cognitive approaches to medieval literature and historical linguistics. Presently, he is conducting ongoing work in the history of the English language and beginning a project on the sources and analogues of J.R.R. Tolkien's Middle-Earth.

Joseph Witztum

Quranic Studies · The Hebrew University of Jerusalem
Funding provided by the Fund for Historical Studies

Joseph Witztum is interested in the Qur'an and its exegesis, especially in light of Jewish and Christian traditions. While at the Institute, he will study the work of the Kufan exegete al-Suddī (d. 745).

Talia Zajac

Medieval History · John Rylands Research Institute and Library and the University of Manchester · *v/s*

Talia Zajac is a social historian whose research interests include medieval church history, the theological and legal history of marriage, cross-cultural exchanges in the Middle Ages, and the role of queens and female rulers in medieval society. While at IAS, Zajac will explore the agency of royal women as political actors, religion-cultural patrons, and diplomatic 'bridge builders' between early Rus' and Latin Christendom during the eleventh to thirteenth centuries.

School of Mathematics

Administrative Officer: Nicole Maldonado

The School of Mathematics, established in 1933, was the first School at the Institute for Advanced Study. Oswald Veblen, Albert Einstein, John von Neumann, and Hermann Weyl were the first Faculty appointments. Kurt Gödel, who joined the Faculty in 1953, was one of the School's first Members. Today, the School is an international center for research in mathematics and theoretical computer science. Members discover new mathematical results and broaden their interests through seminars and interactions with the Faculty and with each other. Several central themes in mathematics in the last nine decades owe their major impetus to discoveries that took place at the Institute. As an example, the creation of one of the first stored-program computers, which von Neumann built on the Institute's campus, influenced the development of today's computers and formed the mathematical basis for computer software.

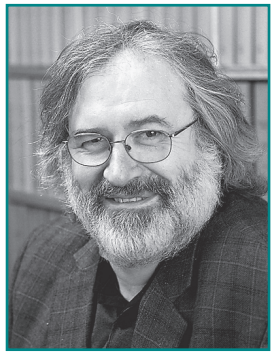
During the 2021–22 academic year, the School will have a special program on h-Principle and its applications to problems in analysis and geometry. László Székelyhidi, Jr., will be the Distinguished Visiting Professor.

Other programs associated with the School are the Park City Mathematics Institute (PCMI), an innovative program integrating mathematics research and mathematics education, and the Program for Women and Mathematics, jointly sponsored with Princeton University, which brings together research mathematicians with women undergraduate and graduate students for an intensive week-long workshop traditionally held on campus.

Camillo De Lellis

IBM von Neumann Professor

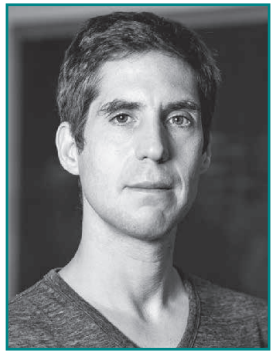
Camillo De Lellis, a geometric analyst, has broad expertise in the calculus of variations, geometric measure theory, and fluid dynamics. Using modern tools and innovative approaches, De Lellis has contributed to central problems in analysis and geometry, resulting in the creation of a transparent proof of regularity and opening new lines of inquiry for geometric analysts to explore.



Helmut Hofer

Hermann Weyl Professor

One of the founders of the area of symplectic topology, Helmut Hofer works on symplectic geometry, dynamical systems, and partial differential equations. His fundamental contributions to the field have led to a new area of mathematics known as Hofer geometry.



Jacob Lurie

Professor

Jacob Lurie's research has influenced a diverse range of fields from topology to number theory, providing foundational work that has changed the way mathematicians describe and work with derived phenomena. His ideas have redefined the foundations of homotopy theory and topological aspects of algebraic geometry, providing a channel through which algebraic topology influences algebraic geometry. His proof of the Baez-Dolan cobordism hypothesis changed the field drastically, providing a precise dictionary between manifold theory and operadic algebra, as well as an applicable language for topological field theory.

Peter Sarnak

Professor

Peter Sarnak has made major contributions to number theory and to questions in analysis motivated by number theory. His interest in mathematics is wide-ranging, and his research focuses on the theory of zeta functions and automorphic forms with applications to number theory, combinatorics, and mathematical physics.

Akshay Venkatesh

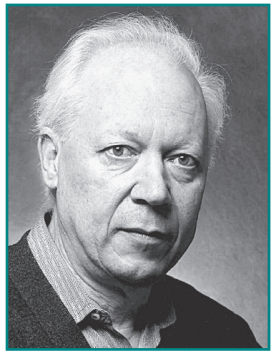
Robert and Luisa Fernholz Professor

Akshay Venkatesh is a mathematician who has worked on many topics at the interface between number theory and other fields, including representation theory, dynamics, and algebraic topology. His recent work examines new algebraic structures related to the topology of locally symmetric spaces.

Avi Wigderson

Herbert H. Maass Professor

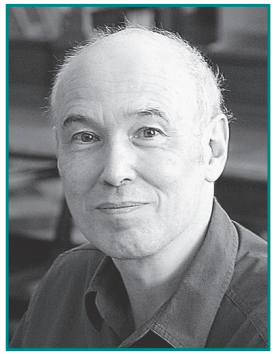
Avi Wigderson is a widely recognized authority in the diverse and evolving field of theoretical computer science. His main research area is computational complexity theory. This field studies the power and limits of efficient computation and is motivated by such fundamental scientific problems as Does P = NP? (Can mathematical creativity be efficiently automated?) Can every efficient process be efficiently reversed? (Is electronic commerce secure?) Can randomness enhance efficient computation? Can quantum mechanics enhance efficient computation? How do we learn, and can machines be taught to learn like us (or better)?



Enrico Bombieri

Professor Emeritus

Enrico Bombieri, a Fields Medalist for his work on the large sieve and its application to the distribution of prime numbers, is one of the world's leading authorities on number theory and analysis. His work ranges from analytic number theory to algebra and algebraic geometry, and the partial differential equations of minimal surfaces. In the past decade, his main contributions have been in the active area of Diophantine approximation and Diophantine geometry, exploring questions on how to solve equations and inequalities in integers and rational numbers. Some of the above topics, in particular those related to prime number theory, have potential practical applications to cryptography and security of data transmission and identification.



Pierre Deligne

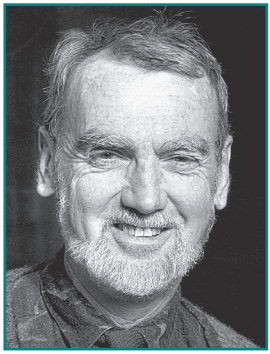
Professor Emeritus

Pierre Deligne is known for his work in algebraic geometry and number theory. He pursues a fundamental understanding of the basic objects of arithmetical algebraic geometry—motive, L-functions, Shimura varieties—and applies the methods of algebraic geometry to trigonometrical sums, linear differential equations and their monodromy, representations of finite groups, and quantization deformation. His research includes work on Hilbert's twenty-first problem, Hodge theory, the relations between modular forms, Galois representations and L-series, the theory of moduli, Tannakian categories, and configurations of hyperplanes.

Phillip A. Griffiths

Professor Emeritus

Phillip Griffiths initiated with his collaborators the theory of variation of Hodge structure, which has come to play a central role in many aspects of algebraic geometry and its uses in modern theoretical physics. In addition to algebraic geometry, he has made contributions to differential and integral geometry, geometric function theory, and the geometry of partial differential equations. A former Director of the Institute (1991–2003), Griffiths chaired the Science Initiative Group, which fosters science in the developing world through programs such as the Carnegie–IAS African Regional Initiative in Science and Education.



Robert P. Langlands

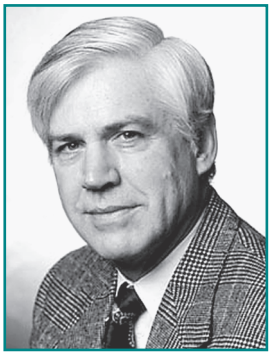
Professor Emeritus

Robert Langlands's profound insights in number theory and representation theory include the formulation of general principles relating automorphic forms and algebraic number theory, the introduction of a general class of L-functions, the construction of a general theory of Eisenstein series, the introduction of techniques for dealing with particular cases of the Artin conjecture (which proved to be of use in the proof of Fermat's theorem), the introduction of endoscopy, and the development of techniques for relating the zeta functions of Shimura varieties to automorphic L-functions. Mathematicians have been working on his conjectures, the Langlands Program, for the last three decades. In recent years, he has been preoccupied by the geometric theory of automorphic forms. He has only now reached the stage at which he can contemplate publication.

Robert MacPherson

Professor Emeritus

Robert MacPherson's work has introduced radically new approaches to the topology of singular spaces and promoted investigations across a great spectrum of mathematics. He works in several fields of geometry-topology, algebraic geometry, differential geometry, and singularity theory. He is especially interested in aspects of geometry that interact with other areas of mathematics, such as the geometry of spaces of lattices, which interacts with modular forms, and the geometry of toric varieties, which interacts with combinatorics.



Thomas Spencer

Professor Emeritus

Thomas Spencer has made major contributions to the theory of phase transitions and the study of singularities at the transition temperature. In special cases, he and his collaborators have proved universality at the transition temperature. Spencer has also worked on partial differential equations with stochastic coefficients, especially localization theory. He is presently developing a mathematical theory of supersymmetric path integrals to study the quantum dynamics of a particle in random media. His other interests include random matrices, chaotic behavior of dynamical systems, and nonequilibrium theories of turbulence.

Bahar Acu

Symplectic Geometry, Contact Topology · Institute for Advanced Study · *f*
Minerva Research Foundation Member

Bahar Acu's research interests lie in the field of symplectic and contact topology, specifically problems surrounding higher-dimensional contact and symplectic manifolds.

Amol Aggarwal

Probability, Mathematical Physics · Columbia University · *vp/s*
Funding provided by the National Science Foundation

Amol Aggarwal's research focuses on the interplay between probability theory, combinatorics, and mathematical physics. His recent interests include equilibrium statistical mechanics, stochastic growth models, algebraic combinatorics and integrability, and large genus asymptotic analysis of surfaces.

Dallas Albritton

Partial Differential Equations, Fluid Dynamics · Institute for Advanced Study
Funding provided by the Simons Foundation

Dallas Albritton researches pure and applied aspects of partial differential equations and fluid dynamics.

Lior Alon

Mathematical Physics · Institute for Advanced Study
Funding provided by The Ambrose Monell Foundation

Lior Alon is interested in quantum graphs, quantum chaos, and universal statistical behavior. In particular, Alon is working on nodal count statistics and quantum ergodicity on growing families of metric graphs, through the scope of their secular manifolds.

Francisco Andres Arana-Herrera

Teichmüller Theory and Dynamics on Moduli Spaces of Riemann Surfaces · Institute for Advanced Study
Funding provided by the National Science Foundation

Francisco Andres Arana-Herrera is particularly interested in Teichmüller theory, hyperbolic geometry, and dynamics on moduli spaces of Riemann surfaces. While at IAS, he plans to continue his research on effective mapping class group dynamics and its applications to counting problems for closed curves on surfaces.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Emelie Kerstin Arvidsson

Arithmetic and Algebraic Geometry · Institute for Advanced Study
Giorgio and Elena Petronio Fellow

Emelie Kerstin Arvidsson is interested in algebraic and arithmetic geometry, with a particular interest in positive characteristic geometry. Recently, she has been studying vanishing theorems in positive characteristics.

Alexey Balitskiy

Geometry · Institute for Advanced Study
Funding provided by the National Science Foundation

Alexey Balitskiy is interested in metric geometry (e.g., the behavior of the Urysohn width), symplectic geometry (e.g., capacities in terms of billiard dynamics), and convexity/discrete geometry.

Aleksandr Berdnikov

Geometric Topology · Institute for Advanced Study
Erik Ellentuck Fellow

Aleksandr Berdnikov is interested in studying the behavior of "metric complexity" of topological objects (say, what Lipschitz constant one needs to realize a given homotopy class, or null-homotope a given mapping, etc., asymptotically speaking). At IAS, Berdnikov's intent is to focus on the h-principles that the special year program lays out.

Vijay Bhattiprolu

Approximation, Optimization, Convex Geometry · Institute for Advanced Study
Founders' Circle Member, in recognition of Cynthia and Robert Hillas; funding provided by the National Science Foundation

Vijay Bhattiprolu works on the intersection of convex geometry, approximation algorithms, and continuous optimization. A current interest is characterizing the (computational) approximability of quadratic maximization over convex sets as a function of the geometry of the convex set.

Bjoern Bringmann

Partial Differential Equations · Institute for Advanced Study
Funding provided by the National Science Foundation

Bjoern Bringmann's research interests lie at the intersection of partial differential equations and probability theory. More specifically, he has been working on dispersive equations, such as nonlinear wave and Schrödinger equations, with random initial data.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Elia Bruè

Metric Geometry, Partial Differential Equations · Institute for Advanced Study

Giorgio and Elena Petronio Fellow

Elia Bruè works in metric geometry and partial differential equations. He has been investigating the structure of non-smooth spaces with Ricci curvature bounded from below, quantitative properties of ODE flows, and solutions to partial differential equations with rough coefficients mainly coming from fluid mechanics.

Matija Bucic

Discrete Mathematics and Combinatorics · Institute for Advanced Study and Princeton University · *vri*

Matija Bucic is interested in a number of topics including, but not limited to, Ramsey theory, algebraic and probabilistic methods in combinatorics, directed graph theory, extremal set theory, theoretical computer science, and random structures.

Tristan Buckmaster

Partial Differential Equations, Fluid Dynamics · Princeton University

Tristan Buckmaster is interested in partial differential equations, with a particular focus on equations related to fluid dynamics. His work at the Institute is focused on singularity formation in fluids.

Clark W. Butler

Dynamical Systems · Institute for Advanced Study and Princeton University · *vri*

Funding provided by the Oswald Veblen Fund

Clark W. Butler's research focuses on the properties of the Lyapunov spectrum associated with an Anosov diffeomorphism. His primary project while at IAS will be to extend continuity and simplicity of spectrum results from a special class of these diffeomorphisms to an open and dense subset of all Anosov diffeomorphisms.

Julian Chaidez

Contact and Symplectic Geometry · Princeton University · *v*

Julian Chaidez is interested in symplectic topology, dynamical systems, low-dimensional topology, and symplectic field theory. At IAS, he will study the role of convexity in Reeb dynamics, the formulation of quantum 4-manifold invariants via trisections, and virtual fundamental cycle methods in symplectic geometry.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Lin Chen

Geometric Langlands Program · Institute for Advanced Study
Funding provided by the Simons Foundation

Lin Chen is interested in geometric representation theory, algebraic geometry, and higher category theory. Chen has been working on the geometric Langlands program.

William Yun Chen

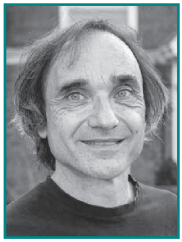
Number Theory, Algebraic Geometry · Institute for Advanced Study
Minerva Research Foundation Member

William Yun Chen is interested in the relation between group theory, algebraic geometry, and number theory, as mediated by monodromy actions on étale fundamental groups. At IAS, he plans to further develop the theory of nonabelian level structures on elliptic curves and its relation to noncongruence modular forms and Teichmüller dynamics.

Alexey P. Cheskidov

Nonlinear Partial Differential Equations and Fluid Dynamics · University of Illinois at Chicago
Funding provided by the Charles Simonyi Endowment

Alexey P. Cheskidov is interested in nonlinear PDEs, mathematical fluid dynamics, and long time behavior of infinite dimensional dynamical systems.



Kai Cieliebak

Symplectic Geometry · Universität Augsburg

Kai Cieliebak's research interests lie in symplectic geometry and its interactions with other subjects such as Hamiltonian dynamics, complex geometry, and physics. His recent research has mostly been centered around the development of symplectic field theory. At IAS, he plans to work on applications of symplectic techniques to classical questions in celestial mechanics and hydrodynamics.

Diego Cordoba

Analysis and Partial Differential Equations · Instituto de Ciencias Matemáticas, Madrid · *s*
Funding provided by the Charles Simonyi Endowment

Diego Cordoba researches partial differential equations, analysis, and fluid mechanics.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Leonardo Coregliano

Graph Limits, Extremal Combinatorics · Institute for Advanced Study

Leonardo Coregliano is interested in the theory of graph limits, its generalization to universal first-order theories (also known by the name continuous combinatorics), and their applications to extremal combinatorics.

Mimi Dai

Partial Differential Equations · University of Illinois at Chicago · *vnf*

Friends of the Institute for Advanced Study Member

Mimi Dai works on analysis of partial differential equations, harmonic analysis, and fluid dynamics.

Ipsita Datta

Symplectic Geometry · Institute for Advanced Study

Funding provided by the National Science Foundation

Ipsita Datta is interested in applications of holomorphic curve techniques to studying Lagrangians. This includes interests in Lagrangian cobordisms in R^4, knot diagrams, moduli spaces of holomorphic disks with corners, algebraic structures from moduli spaces, and obstruction bundle gluing.

Mark de Cataldo

Algebraic Geometry · Stony Brook University, The State University of New York · *f*

Mark de Cataldo studies algebraic geometry. He specializes in topology, Hodge and cycle theory of algebraic varieties, and maps.

Cédric De Groote

Symplectic Geometry · Institute for Advanced Study

Funding provided by The Ambrose Monell Foundation

Cédric De Groote's main research area is symplectic and contact geometry. He is interested in flexibility questions, and in the applications and foundations of contact homology. While at IAS, he plans to work on orderability problems for contact manifolds, and on flexibility problems at the interface of contact geometry and PDEs.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Hongjie Dong

Partial Differential Equations · Brown University

Funding provided by the Charles Simonyi Endowment

Hongjie Dong's main research interest involves both partial differential equations and probability theory: more specifically, fully nonlinear elliptic and parabolic equations, probability approach of partial differential equations, stochastic partial differential equations, and equations from fluid mechanics and composite materials.

Theodore Dimitrios Drivas

Fluid Dynamics, Turbulence, Dynamical Systems · Stony Brook University, The State University of New York · *s*

Funding provided by the Charles Simonyi Endowment

Theodore D. Drivas's research interests include fluid dynamics, turbulence theory, and dynamical systems.

Ronen Eldan

High-dimensional probability · Weizmann Institute of Science · *vnf*

Funding provided by the National Science Foundation

Ronen Eldan is interested in phenomena that arise when the dimension of the system (or the number of degrees of freedom) tends to infinity. Manifestations of this phenomena appear in several mathematical domains, such as probability, analysis, geometry, combinatorics, theoretical computer science, and machine learning.

Yakov Eliashberg

Geometry, Topology · Stanford University · *f*

Yakov Eliashberg is currently interested in symplectic and contact geometry and topology. While at IAS, he will continue his explorations of boundaries of symplectic flexibility, and will be working on a book on symplectic h-principles. He also intends to learn about applications of h-principle techniques in fluid dynamics.

Daniel Faraco

Analysis, Applied Mathematics · Universidad Autónoma de Madrid · *s*

Bell System Fellow

Daniel Faraco's research interest lies at the intersection between mathematical analysis and applied mathematics, which includes applied problems with a strong theoretical component or theoretical problems with a potential use in applications.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Mathilde Gerbelli-Gauthier

Number Theory, Representation Theory · Institute for Advanced Study

Funding provided by the Charles Simonyi Endowment

Mathilde Gerbelli-Gauthier's research is in number theory with a focus on automorphic representations. She is especially interested in their asymptotic properties, as well as applications to the study of locally symmetric spaces.

William Goldman

Differential Geometry, Topology, Dynamics · University of Maryland

William Goldman is fascinated by locally homogeneous geometric structures on manifolds and their classification. The diversity of geometries on homogeneous spaces of Lie groups and the relations between them invites tools from disparate mathematical fields. Among them is symplectic/contact topology, which he hopes to learn while at IAS.

Mark Goresky

Geometry, Automorphic Forms · Institute for Advanced Study · *v*

Mark Goresky is studying the moduli space of abelian varieties with real structures and its finite field analogues.

Fernando Granha Jeronimo

Theoretical Computer Science · Institute for Advanced Study

Funding provided by the National Science Foundation

Fernando Granha Jeronimo is broadly interested in theoretical computer science and its connections to mathematics. He has been investigating problems involving coding theory, expansion, optimization, and pseudorandomness.

André Guerra

Partial Differential Equations · Institute for Advanced Study

Infosys Member

André Guerra is interested in the calculus of variations and nonlinear PDEs.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Michael Harrison

Differential Topology · Institute for Advanced Study

Funding provided by the National Science Foundation

Michael Harrison studies immersion and embedding problems using h-principle techniques and Borsuk-Ulam type results. He studies classification problems for skew fibrations and great sphere fibrations, topological and geodesic complexity of configuration spaces, and billiards on Finsler manifolds and on spaces of geodesics.

Manh Khang Huynh

Partial Differential Equations · Institute for Advanced Study

Manh Khang Huynh is interested in the study of partial differential equations, Riemannian geometry, and harmonic analysis, with a focus on Onsager's conjecture.

Christoph Kehle

Partial Differential Equations, General Relativity · Institute for Advanced Study

Christoph Kehle is interested in mathematical relativity and, more generally, the analysis of partial differential equations originating from physics.

Casey Kelleher

Geometric Analysis · Institute for Advanced Study · *v*

Casey Kelleher conducts research in geometric analysis with a focus on studying geometric flows.

Kamal Khuri-Makdisi

Number Theory · American University of Beirut · *s*

Funding provided by the Charles Simonyi Endowment

Kamal Khuri-Makdisi studies effective methods in automorphic forms, algebraic curves, and abelian varieties.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Hana Jia Kong

Algebraic Topology, Homotopy Theory · Institute for Advanced Study

Funding provided by the National Science Foundation

Hana Jia Kong's research interest is algebraic topology, with a particular emphasis on motivic and equivariant homotopy theory.

Sam G. Krupa

Partial Differential Equations · Institute for Advanced Study

Funding provided by the National Science Foundation

Sam G. Krupa's work focuses on both the well-posedness and ill-posedness theory for conservation laws. His work falls broadly into two parts: (1) studying the positive side of well-posedness and finding stability theorems using the theories of shifts and a-contraction, and (2) studying ill-posedness via convex integration.

Hyunju Kwon

Partial Differential Equations · Institute for Advanced Study

Funding provided by the National Science Foundation

Hyunju Kwon is interested in nonlinear partial differential equations. Kwon has been exploring incompressible fluid models, such as the Euler equations, Navier-Stokes, and equations arising from them, using functional and harmonic analysis tools.

Emmanuel Lecouturier

Number Theory · Institute for Advanced Study · *s*

Emmanuel Lecouturier is a number theorist especially interested in the theory of modular forms. One of the central tools Lecouturier has been using is the theory of modular symbols.

Minju Lee

Homogeneous Dynamics · Institute for Advanced Study

Funding provided by the National Science Foundation

Minju Lee is interested in homogeneous dynamics and ergodic theory on infinite volume space. His research interests include hyperbolic geometry, Kleinian groups, and higher Teichmüller theory.

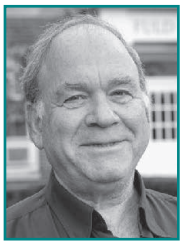
f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Yau Wing Li

Representation Theory · Institute for Advanced Study

Funding provided by the National Science Foundation and the S. S. Chern Foundation for Mathematical Research Fund

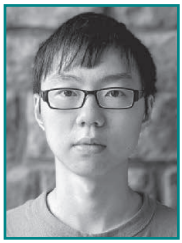
Yau Wing Li works in geometric representation theory, with an emphasis on affine Hecke categories and their applications in the local geometric Langlands program.



Alexander Lubotzky

Group Theory, Combinatorics, Computer Science · The Hebrew University of Jerusalem · *vp/f, v/s*

Alexander Lubotzky is interested in all parts of group theory, including Lie groups, arithmetic groups, finite groups, and geometric and combinatorial group theory. Lubotzky is especially interested in connections with CS and combinatorics. These days, Lubotzky is working on stability theory in group theory and on property-testing and error-correcting codes.



Xiaoyutao Luo

Partial Differential Equations · Duke University

Funding provided by the National Science Foundation

Xiaoyutao Luo is interested in partial differential equations arising from fluid dynamics. His current research focuses on nonuniqueness, ill-posedness, anomalous dissipation, and other pathological behaviors in these models.

Vieri Mastropietro

Quantum Field Theory · Università degli Studi di Milano · *s*

Vieri Mastropietro is working on universality in interacting fermionic or spin systems, non-perturbative construction of quantum field theories and anomalies, localization in many-body quantum systems with quasi-periodic disorder, and renormalization group methods.

Jonathan Mattingly

Random Dynamics, Fluids, Stochastic Analysis · Duke University · *f*

At IAS, Jonathan Mattingly will mainly be concerned with the dynamic and statistical properties of random models of fluid flow, especially the transfer of "energy" between scales. As it is a census year, Mattingly will also be analyzing various redistrictings as they are announced.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Svitlana Mayboroda

Analysis, Partial Differential Equations · University of Minnesota · *vnf/f*
Funding provided by the National Science Foundation

Svitlana Mayboroda is interested in the interplay between geometric properties of sets and properties of the solutions to partial differential equations, as well as localization phenomena and, more generally, spectral features of elliptic operators.

Gael Meigniez

Geometry, Topology · Aix-Marseille University · *f*

Gael Meigniez is especially interested in the spirit of Gromov's homotopy principle, in the construction and the classification of some geometric structures on differential manifolds of large dimensions, and in the homotopy theory of foliations.

Francisco Mengual

Partial Differential Equations · Institute for Advanced Study
Funding provided by the James D. Wolfensohn Fund

Francisco Mengual is interested in partial differential equations, particularly those arising in fluid mechanics. His work focuses on modelling hydrodynamic instabilities by means of the convex integration method.

Agustin Moreno

Contact and Symplectic Geometry · Institute for Advanced Study
Funding provided by the National Science Foundation

Agustin Moreno is broadly interested in contact and symplectic geometry, and interactions: e.g., mathematical physics, or Hamiltonian dynamics. At IAS, Moreno will continue work that has recently given insights into the well-known restricted 3-body problem from a theoretical standpoint, but also with a view towards practical applications such as space mission design.

Emmy Murphy

Geometric Topology · Northwestern University · *v*

Emmy Murphy's research is principally in symplectic and contact topology.

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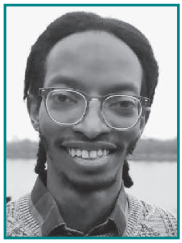
vri Veblen Research Instructor · *vnf* von Neumann Fellow



Jean Pierre Mutanguha

Geometric Group Theory · Institute for Advanced Study
Funding provided by the National Science Foundation

Jean Pierre Mutanguha cannot stop thinking about equivalences between the dynamics of free group automorphisms and the geometry of free-by-cyclic groups. Although the established equivalences are few and far between, Mutanguha suspects there is a lot more waiting to be discovered. On occasion, he finds himself studying 2- and 3-manifolds.

Danny Neftin

Algebra, Number Theory · Technion-Israel Institute of Technology

Danny Neftin is interested in arithmetic geometry, group theory, algebraic number theory, Galois cohomology, and torsors.

Paul Nelson

Number Theory · Eidgenössische Technische Hochschule Zürich · *vnf*
Funding provided by the National Science Foundation

Paul Nelson is working on number theory, automorphic forms, and representation theory.

Matthew Novack

Partial Differential Equations, Fluid Dynamics · Institute for Advanced Study
Funding provided by the National Science Foundation

Matthew Novack is interested in partial differential equations, particularly those arising in fluid dynamics.

Dishant Mayurbhai Pancholi

Geometric Topology, Symplectic Geometry · Chennai Mathematical Institute · *vnf*
Funding provided by the National Science Foundation

Dishant Mayurbhai Pancholi is principally interested figuring out the extent to which problems in geometric topology and symplectic geometry adhere to the h-principle.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

John Peebles

Algorithms, Optimization, and Statistics · Institute for Advanced Study
Founders' Circle Member, in recognition of Stephen DeAngelis

John Peebles works in subfields including algorithms, optimization, and statistics. Peebles is also interested in applications of these techniques to other fields, including complexity theory and deep/traditional machine learning.

Sarah Peluse

Number Theory · Institute for Advanced Study and Princeton University · *vri*

Sarah Peluse works in analytic number theory and arithmetic combinatorics, and is especially interested in questions in higher-order Fourier analysis and additive number theory.

Toniann Pitassi

Computational Complexity, Proof Theory · Columbia University and University of Toronto · *v/f, vp/s*
Funding provided by the National Science Foundation

Toniann Pitassi's research area is complexity theory: understanding the limitations of computation, specializing in circuit complexity, proof complexity, and communication complexity. She is also interested in mathematical models for privacy-preserving computation and non-discriminatory machine learning.

Samuel Punshon-Smith

Partial Differential Equations · Brown University
Funding provided by the Simons Foundation

Samuel Punshon-Smith's research is largely focused on partial differential equations, stochastic analysis, and random dynamical systems applied to the study of chaos and turbulence in problems arising primarily from fluid mechanics.

Shifra Reif

Representation Theory · Bar-Ilan University

Shifra Reif's research interests include finite-dimensional and affine Lie (super-) algebras, their representations and characters. Reif is also interested in (super-) symmetric spaces and categorification.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Jinbo Ren

Arithmetic Algebraic Geometry · Institute for Advanced Study

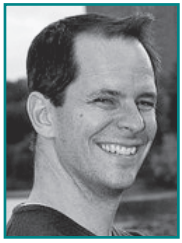
Funding provided by the National Science Foundation and the Ky Fan and Yu-Fen Fan Endowment Fund

Jinbo Ren's main research interest is in arithmetic algebraic geometry, especially unlikely intersections in Shimura varieties, such as the André-Oort and Zilber-Pink conjectures. Ren is also interested in related topics in spectral geometry, number theory, model theory, and group theory.

Joshua Sabloff

Contact and Symplectic Geometry · Haverford College

Joshua Sabloff investigates the topology and (symplectic) geometry of Legendrian submanifolds and Lagrangian cobordisms between them, especially using Floer-type invariants.



Patrick Shafto

Machine and Human Learning · Rutgers University in Newark

Patrick Shafto works on machine learning, human learning, and cooperation using techniques from probabilistic machine learning, optimal transportation, and behavioral research.

Alexander Shnirelman

Fluid Dynamics, Geometry, Dynamical Systems · Concordia University, Montreal · *f*

Alexander Shnirelman's research interests include fluid dynamics, geometry, and dynamical systems.

Artane Jeremie Siad

Number Theory · Princeton University · *v*

Artane Jeremie Siad is interested in arithmetic statistics and related areas. While at IAS, he hopes to understand the distribution of class groups in thin families of global fields.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Kyler Siegel

Symplectic Geometry · University of Southern California · *f*
Funding provided by the Charles Simonyi Endowment

Kyler Siegel is interested in flexibility and rigidity phenomena in symplectic geometry and related fields. Currently, his research focuses on studying higher algebraic structures in Floer theory and symplectic field theory and their applications to embedding problems. While at IAS, he hopes to explore connections with fluid dynamics.

Vladimír Šverák

Partial Differential Equations · University of Minnesota
Shiing-Shen Chern Member

Vladimír Šverák works in the theory of PDEs. In recent years, he has been mostly interested in PDE analysis aspects of the equations of fluid mechanics.

László Székelyhidi

Partial Differential Equations · University of Leipzig · *dvp*

László Székelyhidi is interested in nonlinear partial differential equations arising, for instance, in fluid mechanics and geometry. At IAS, he hopes to explore further the deep connections between h-principle, geometric flexibility, and turbulent solutions of various PDEs arising in continuum physics.

Shira Tanny

Symplectic Geometry · Institute for Advanced Study
AMIAS Member

Shira Tanny is working in symplectic topology and Hamiltonian dynamics, including function theory on symplectic manifolds, Floer theory, and interactions with convex geometry.

Roei Tell

Computational Complexity · Institute for Advanced Study · *v*

What are the limits of efficient computation? Roei Tell works in computational complexity, the mathematical field that delineates the capabilities of algorithms and computers. He focuses on fundamental questions in this area, exploring the connections between randomness, algorithms, and problems that computers cannot solve efficiently.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Karen Uhlenbeck

Geometric Partial Differential Equations, Gauge Theory · The University of Texas at Austin · *dvp*

Karen Uhlenbeck works primarily on geometric partial differential equations. She has worked in the areas of the calculus of variations, minimal surfaces, harmonic maps, gauge theory, and integrable systems. Her current interest is in analysis connected with the best Lipschitz model for Teichmüller space of Thurston.

John C. Urschel

Numerical Analysis · Institute for Advanced Study

Funding provided by the National Science Foundation and Anonymous Donor

John C. Urschel is interested in linear algebra, numerical analysis, and graph theory, with research topics including eigenvalue algorithms, spectral graph theory, and determinantal point processes.

Bian Wu

Fluid Dynamics · Institute for Advanced Study

Funding provided by the Simons Foundation

Bian Wu is interested in various mathematical problems arising from fluid dynamics.

Pei Wu

Theoretical Computer Science · Institute for Advanced Study

Funding provided by the National Science Foundation

Pei Wu is broadly interested in theoretical computer science. Wu's current interests include communication complexity, query complexity, etc.

Jingwei Xiao

Langlands Program, Relative Trace Formula · Institute for Advanced Study and Princeton University · *vri*

Funding provided by the National Science Foundation and the Oswald Veblen Fund

Jingwei Xiao is interested in the Langlands program, especially the study of relative trace formulas to relate special values of L-functions with automorphic objects. Xiao's research interests also include generalization of these ideas to other settings, for example, arithmetic, functional field, and p-adic.

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

Lai-Sang Young

Dynamical Systems · New York University · *v/f, dvp/s*

Funding provided by the Simons Foundation

Lai-Sang Young plans to continue working in the rigorous analysis of large and complex dynamical systems, focusing on introducing biology-inspired models into the field. Young will also continue working in computational neuroscience.

Or Zamir

Algorithms, Data Structures, Graph Theory, Combinatorics · Institute for Advanced Study

Or Zamir's fields of interest revolve around algorithms, data structures, graph theory, and combinatorics. In previous work, Zamir obtained faster algorithms for solving NP-Complete problems including k-SAT and k-Coloring.

Karen EDGE Fellowship

IN A PARTNERSHIP with IAS, the Karen EDGE Fellowship works to support and enhance the research programs and collaborations of mid-career mathematicians, as well as promote greater diversity and inclusion in mathematics. The fellowship was created with the generous support of Abel Prize winner Karen Uhlenbeck, in conjunction with the EDGE Foundation.

KAREN EDGE FELLOWS

Pamela Harris

Emille Lawrence

Mohamed Omar

Manuel Rivera

Bobby Wilson

f First Term · *s* Second Term · *v* Visitor · *dvp* Distinguished Visiting Professor · *vp* Visiting Professor
vri Veblen Research Instructor · *vnf* von Neumann Fellow

School of Natural Sciences

Administrative Officer: Michelle Sage

The School of Natural Sciences, established in 1966, provides a unique atmosphere for research in broad areas of theoretical physics, astronomy, and systems biology.

From its earliest days, the Institute has been a leading center for fundamental physics, contributing substantially to many of its central themes, which now interrelate with mathematics, astrophysics, and biology. Members in the astrophysics research group employ an array of tools from theoretical physics, large-scale computer simulations, and ground- and space-based observational studies to investigate the origin and composition of the universe, and to use the universe as a laboratory to study fundamental physics. At the Simons Center for Systems Biology, established in the School in 2004, the tools of modern physics and mathematics are being applied to biological investigation. This collaborative and pioneering approach to the sciences, which extends to the Institute's School of Mathematics, Princeton University, Rockefeller University, and the larger scientific community, has transformed research in these fields and presents opportunities for powerful and important discoveries.

Areas of current interest in theoretical physics include elementary particle physics, particle phenomenology, string theory, quantum theory, and quantum gravity, and their relationship to geometry, theoretical and observational astrophysics, and cosmology. The astrophysics group combines theory with modern observational studies to understand a wide variety of astrophysical phenomena, from nearby planets to distant galaxies, from black holes to the dark matter and dark energy that dominate the evolution of the universe. The Simons Center conducts research at the interface of biology and the physical sciences, developing theoretical and experimental methods necessary for studying the collective behavior of biomolecules, cells, and organisms, exploring how individual components can give rise to complex, collective phenomena, and in some cases focusing on understanding disease processes.

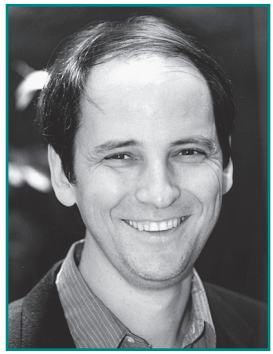
The School also sponsors Prospects in Theoretical Physics,* a two-week residential summer program traditionally held at the Institute for promising graduate students and postdoctoral scholars, who attend lectures and sessions on the latest advances and open questions in the field of theoretical physics.

* *Due to Covid-19, this program was postponed in both 2020 and 2021.*

Nima Arkani-Hamed

Professor · Particle Physics

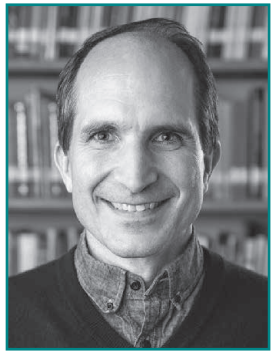
One of the leading particle physics phenomenologists of his generation, Nima Arkani-Hamed is concerned with the relation between theory and experiment. His research has shown how the extreme weakness of gravity, relative to other forces of nature, might be explained by the existence of extra dimensions of space, and how the structure of comparatively low-energy physics is constrained within the context of string theory. He has taken a lead in proposing new physical theories that can be tested at the Large Hadron Collider at CERN in Switzerland.



Stanislas Leibler

Professor · Biology

Stanislas Leibler has made contributions to theoretical and experimental biology, extending the interface between physics and biology to develop new solutions and approaches to problems. Interested in the quantitative description of microbial systems, on both cellular and population levels, Leibler is developing the theoretical and experimental methods necessary for studying the collective behavior of biomolecules, cells, and organisms. By selecting a number of basic questions about how simple genetic and biochemical networks function in bacteria, he and his laboratory colleagues are beginning to understand how individual components can give rise to complex, collective phenomena.



Juan Maldacena

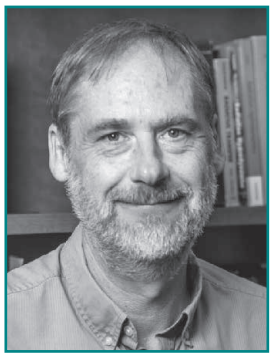
Carl P. Feinberg Professor · Theoretical Physics

Juan Maldacena's work focuses on quantum gravity, string theory, and quantum field theory. He has proposed a relationship between quantum gravity and quantum field theories that elucidates various aspects of both theories. He is studying this relationship further in order to understand the deep connection between black holes and quantum field theories, and he is also exploring the connection between string theory and cosmology.

Nathan Seiberg

Professor · Mathematical Physics

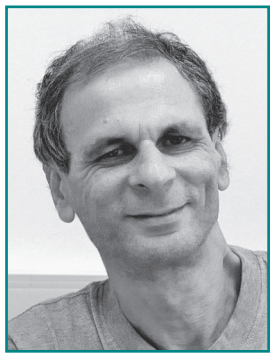
Nathan Seiberg's research focuses on various aspects of string theory, quantum field theory, and particle physics. He has made deep contributions to the understanding of the dynamics of quantum field theories, especially two-dimensional conformal field theories and supersymmetric quantum field theories. His exact solutions of supersymmetric systems have uncovered many new and unexpected phenomena, including the fundamental role of electric-magnetic duality in these theories. These exact solutions have led to many applications in physics and in mathematics. Recently, he combined insights from his earlier work to shed new light on quantum field theories in three space-time dimensions, which are also of interest to condensed matter physics.



James Stone

Professor · Computational Astrophysics

James Stone has developed novel numerical algorithms that have shaped the field of computational astrophysics and ushered in a new era of precision simulations with a wide range of applications. Stone's research is focused on fluid dynamics, particularly magnetohydrodynamics, for which he has developed some of the most powerful and widely used astrophysical codes. He has contributed groundbreaking methods to address a few of the field's most challenging problems, resulting in foundational insights into the nature of giant molecular clouds, the evolution of accretion disks, the process of planetary migration, and the phenomena of radiation transport.



Michail Tsodyks

C.V. Starr Professor · Theoretical Neuroscience

Misha Tsodyks is a leading theoretical neuroscientist whose research has influenced important areas of neurobiology and the development of a quantitative understanding of brain functioning and human cognitive abilities. His work is focused on identifying neural algorithms that define functions of cortical systems and, in recent years, various aspects of cognitive behavior. From demonstrating the importance of sparsity in neural networks to providing deep insights into the mechanisms of short-term synaptic plasticity and working and associative memory, Tsodyks has devised conceptual models that make quantitative testable predictions for experiments.

Edward Witten

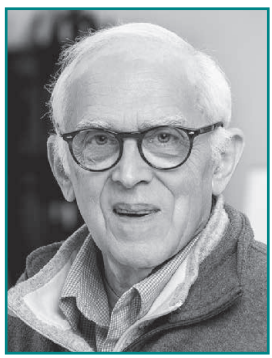
Charles Simonyi Professor · Mathematical Physics

Edward Witten's work exhibits a unique combination of mathematical power and physics insight, and his contributions have significantly enriched both fields. He has greatly contributed to the modern interest in superstrings as a candidate theory for the unification of all known physical interactions. Most recently, he has explored quantum duality symmetries of field theories and string theories, opening significant new perspectives on particle physics, string theory, and topology.

Matias Zaldarriaga

Richard Black Professor · Astrophysics and Cosmology

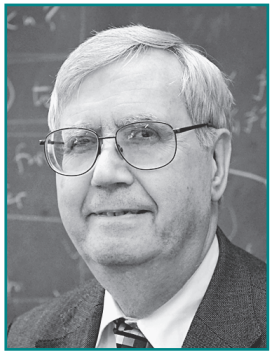
Matias Zaldarriaga has made many influential and creative contributions to our understanding of the early universe, particle astrophysics, and cosmology as a probe of fundamental physics. Much of his work centers on understanding the clues about the earliest moments of our universe encoded in the Cosmic Microwave Background, the faint glow of radiation generated by the Big Bang, and in the distribution of matter in the late universe.



Stephen L. Adler

Professor Emeritus · Particle Physics

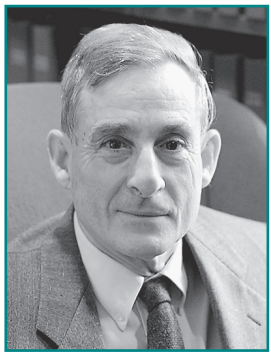
In a series of remarkable, difficult calculations, Stephen L. Adler demonstrated that abstract ideas about the symmetries of fundamental interactions could be made to yield concrete predictions. The successful verification of these predictions was a vital step toward the modern Standard Model of particle physics. In more recent work, he has been exploring generalized forms of quantum mechanics, both from a theoretical and a phenomenological standpoint. He has developed new algorithms for multidimensional integration, and is currently exploring a particle unification model based on boson-fermion balance without full supersymmetry, and a novel proposal for the "dark energy" that drives the accelerated expansion of the universe.



Peter Goddard

Professor Emeritus · Mathematical Physics

Peter Goddard's research concerns quantum field theory and string theory. With his collaborators, he has made pioneering contributions to these areas, particularly the quantization of the relativistic string, the "no ghost theorem" of string theory, electric-magnetic duality in gauge theories, the construction of conformal field theories, and the realization of gauge symmetry in string theory. Before serving as the eighth Director (2004–12) of the Institute for Advanced Study, he was Master of St. John's College and Professor of Theoretical Physics in the University of Cambridge, England, where he played a leading role in establishing the Isaac Newton Institute for Mathematical Sciences and the University of Cambridge Centre for Mathematical Sciences.



Peter Goldreich

Professor Emeritus · Astrophysics

Peter Goldreich has made profound and lasting contributions to planetary science and astrophysics, providing fundamental theoretical insights for understanding the rotation of planets, the dynamics of planetary rings, pulsars, astrophysical masers, the spiral arms of galaxies, oscillations of the sun and white dwarfs, turbulence in magnetized fluids, and planet formation. His current research is focused on the production of impact spherules.

Arnold J. Levine

Professor Emeritus · Biology

Arnold J. Levine is a widely acclaimed leader in cancer research. In 1979, Levine and others discovered the p53 tumor suppressor protein, a molecule that inhibits tumor development. He established the Simons Center for Systems Biology at the Institute, concentrating on research at the interface of molecular biology and the physical sciences: Recognizing the potential of convergence research in the life sciences, Levine has inaugurated a program of research collaborations, in partnership with Stand Up to Cancer (and others), that brings together quantitative scientists from theoretical physics, computer science, and mathematics, with biologists and clinicians, to develop novel approaches to solve important problems in cancer research. He also leads the NSF–sponsored Cancer Convergence Education Network, and focuses on fostering convergence research to produce fundamental insights in the areas of immunology and infectious diseases.

Scott Tremaine

Professor Emeritus · Astrophysics

Scott Tremaine has made seminal contributions to understanding the formation and evolution of planetary systems, comets, black holes, star clusters, galaxies, and galaxy systems. He predicted the Kuiper belt of comets beyond Neptune and, with Peter Goldreich, the existence of shepherd satellites and density waves in Saturn's ring system, as well as the phenomenon of planetary migration. He interpreted double-nuclei galaxies, such as the nearby Andromeda galaxy, as eccentric stellar disks, and elucidated the role of dynamical friction in galaxy evolution.

Kazuyuki Akitsu

Cosmology · Institute for Advanced Study

Kazuyuki Akitsu's research has utilized both analytic and numerical methods to focus on tidal effects arising from the initial conditions or the gravitational clustering in the cosmological structure formation. He is also interested in extracting cosmological signals hidden in the shape of galaxies.

Ahmed Almheiri

Quantum Field Theory · Institute for Advanced Study · *m*

Ahmed Almheiri is interested in understanding the connections between quantum information theory, quantum field theory, and quantum gravity. He previously worked on formulating the black hole firewall paradox and recasting AdS/CFT as a quantum error-correcting code. He is currently working on understanding what happens inside black holes.

Lev Arzamasskiy

Astrophysics · Institute for Advanced Study

Funding provided by Schmidt Futures

Lev Arzamasskiy uses analytical and numerical methods to study the basic plasma physics that occurs in various space and astrophysical systems, such as the solar wind, black hole accretion flows, and the intracluster medium of galaxy clusters.

Ibrahima Bah

Particle Theory · Johns Hopkins University

Ibrahima Bah's research concerns the relations between string theory and quantum field theory. These provide access to novel and fundamental properties of quantum field theory. Bah hopes to exploit these properties to obtain a classification of quantum field theories.

Pinaki Banerjee

Theoretical Physics · Institute for Advanced Study

Pinaki Banerjee is broadly interested in various aspects of quantum field theory and gauge/gravity duality. His present research primarily focuses on modern on-shell scattering amplitudes and conformal field theories in diverse dimensions.

f First Term · *s* Second Term · *m* Long-term Member · *v* Visitor
dvp Distinguished Visiting Professor · *jvp* Junior Visiting Professor · *ra* Research Associate

Rennan Barkana

Theoretical Cosmology · Tel Aviv University

Funding provided by The Ambrose Monell Foundation

Rennan Barkana studies cosmic dawn, the era of the formation of the first stars in the universe. He constructs models and simulations in order to predict the properties of the galaxies in which the first stars and black holes formed, and studies ways to observe them, especially with radio waves from hydrogen at a wavelength of 21 cm.

Sirio Belga Fedeli

Systems Biology · Institute for Advanced Study

Funding provided by the Simons Foundation

Sirio Belga Fedeli's research focuses on the mathematics of principles which govern cellular processes. Belga Fedeli's interests include collective behavior and dynamics of ecological systems.

Giovanni Cabass

Cosmology · Institute for Advanced Study

Bezos Member

Giovanni Cabass's research focuses on the epoch of primordial inflation and what imprints it left on the distribution of galaxies and the low-redshift universe. Cabass is interested in developing effective field theory techniques to find what these imprints are, and then to constrain them using observations of galaxy clustering.

Tankut Can

Physics, Neuroscience, Machine Learning · Institute for Advanced Study

Funding provided by the Simons Foundation

Tankut Can is a theoretical physicist interested in cognition. His background is in condensed matter, with an emphasis on random matrix theory and statistical physics. His current research applies these tools to study problems in machine learning and neuroscience.

Lisa Carbone

Mathematical Physics · Rutgers, The State University of New Jersey · *f*

Lisa Carbone is working on symmetries of infinite dimensional Lie groups and Lie algebras with applications to theoretical physics.

f First Term · *s* Second Term · *m* Long-term Member · *v* Visitor
dvp Distinguished Visiting Professor · *jvp* Junior Visiting Professor · *ra* Research Associate

Sukanya Chakrabarti

Theoretical Physics · Rochester Institute of Technology · *v/f*

Sukanya Chakrabarti is working on galactic dynamics (dark matter, dwarf galaxies, computational simulations and observations) and time-domain astronomy (lensed supernovae and EM follow-up of LIGO-Virgo sources).

Venkatesa Chandrasekaran

Theoretical Physics · Institute for Advanced Study

Funding provided by the Simons Foundation

Venkatesa Chandrasekaran is broadly interested in general relativity and quantum field theory. His current research centers on edge modes in gravity and their role in understanding black hole entropy. His other primary focus is on the relationship between modular flow and the emergence of spacetime.

Christopher Logan Chariker

Computational Neuroscience · Institute for Advanced Study

Funding provided by the Simons Foundation

Christopher Logan Chariker's research is at the interface between dynamical systems and computational neuroscience. Chariker works with networks of interacting neurons viewed as large and complex dynamical systems. Chariker's interests range from rigorous analysis of toy models of neuronal populations to large-scale computational models that are biologically realistic.

Horng Sheng Chia

Gravitational Waves, Black Holes, Particle Physics, Astrophysics · Institute for Advanced Study

Horng Sheng Chia is broadly interested in black hole physics, gravitational-wave data analysis, and phenomenological aspects of particle physics. His current research focuses on analyzing the gravitational-wave signals from astrophysical sources in the LIGO-Virgo data. He is also interested in using these data to search for physics beyond the Standard Model.

Lorenz Eberhardt

String Theory · Institute for Advanced Study · *m*

Marvin L. Goldberger Member; additional funding provided by the U.S. Department of Energy

Lorenz Eberhardt is interested in many areas related to two-dimensional conformal field theory. He is studying in particular the AdS3/CFT2 correspondence, worldsheet methods in string theory, W-algebras, and moonshine phenomena.

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dvp Distinguished Visiting Professor · *jvp* Junior Visiting Professor · *ra* Research Associate

Angelo Esposito

Theoretical High-Energy Physics · Institute for Advanced Study

Roger Dashen Member; additional funding provided by the U.S. Department of Energy

Angelo Esposito investigates the interplay between high- and low-energy physics, mostly employing effective field theories. Esposito's work spans different topics, covering condensed matter, particle physics and cosmology. His research connects modern theoretical tools to phenomenological problems, and is constantly directed towards testable predictions.

Felix Haehl

Theoretical Physics · Institute for Advanced Study

Funding provided by the U.S. Department of Energy

Felix Haehl uses holography and quantum field theory to investigate questions about time-dependent gravitational physics, quantum gravity, and black holes. A recurring theme in his research is thermality and different notions of entropy.

Chris Hamilton

Astrophysics · Institute for Advanced Study

Funding provided by the Simons Foundation

Chris Hamilton's research concerns: the dynamics of galaxies, globular clusters, binary stars, and planetary systems; compact object mergers (LIGO/Virgo gravitational wave progenitors); the kinetic theory of stellar systems and plasmas.

Holmfridur Hannesdottir

Theoretical Physics · Institute for Advanced Study

Funding provided by the Simons Foundation

Holmfridur Hannesdottir is interested in exploring the theoretical foundations of quantum field theory. By exploiting infrared divergences and constraints on the analytic structure, she probes properties of scattering amplitudes in perturbation theory.

Nathan Haouzi

Mathematical Physics · Institute for Advanced Study

AMIAS Member; additional funding provided by the National Science Foundation

Nathan Haouzi studies string theory and quantum field theory in various dimensions. Haouzi is particularly interested in the underlying mathematical structures that explain or motivate physical dualities. Some of his recent work explores new aspects of the BPS/CFT correspondence, and its relation to the representation theory of quantum groups.

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dvp Distinguished Visiting Professor · *jvp* Junior Visiting Professor · *ra* Research Associate

Matthew Heydeman

Theoretical Physics · Institute for Advanced Study and Princeton University

Corning Glass Works Foundation Fellow; additional funding provided by the U.S. Department of Energy

Matthew Heydeman works at the interface of black holes in string theory, scattering amplitudes, and the AdS/CFT correspondence, especially in the context of supergravity. A common theme is the use of physical dualities and mathematical techniques to find new connections between seemingly different physical systems.

David A. Huse

Physics · Princeton University · *dvp*

Funding provided by the Simons Foundation

While at IAS, David A. Huse plans to work on various questions in many-body quantum dynamics. Huse will also be visiting the Systems Biology group.

Hsiang-Chih Hwang

Astronomy · Institute for Advanced Study

Infosys Member

Hsiang-Chih Hwang's research focuses on binary stars and binary quasars. He uses large astronomical surveys to understand the formation and evolution of binary stars in the Milky Way, including main-sequence stars, white dwarfs, and close and wide binaries. He is also developing a new astrometric method to search for sub-kpc binary quasars.

Nafiz Ishtiaque

Quantum Field Theory · Institute for Advanced Study

Funding provided by the National Science Foundation and the Sivian Fund

Nafiz Ishtiaque studies exactly computable algebraic structures in supersymmetric quantum field theories and their roles in dualities.

Mikhail M. Ivanov

Cosmology, Black Holes · Institute for Advanced Study

NASA Einstein Fellow

Mikhail M. Ivanov studies cosmological structure formation. He develops the first-principle theoretical description of gravitational clustering and uses it to extract new information about our universe from large-scale structure data. He is also interested in black hole physics and the effective field theory of inspiraling binaries.

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Mikhail Katkov

Neuroscience · Weizmann Institute of Science · *v/f*

Mikhail Katkov is interested in exploring how humans understand the outside world, through the lens of theories, as well as experimentation in perception of low- to mid-level visual features and in memory for verbal material ranging from random lists to meaningful information.

Ahsan Z. Khan

Theoretical Physics · Institute for Advanced Study

Funding provided by the National Science Foundation and the Paul Dirac Fund

Ahsan Z. Khan is studying BPS defects in supersymmetric field theory and the mathematical structures that describe the interaction of these defects. Khan is also interested in how the study of BPS objects and the structures that govern them can lead to concrete predictions in algebra and geometry.

Joonho Kim

Theoretical Physics · Institute for Advanced Study · *v/f*

Joonho Kim works on quantum field theory and string theory, with a particular interest in supersymmetric field theories in diverse dimensions and their non-perturbative dynamics.

Igor Klebanov

Quantum Field Theory and Strings · Princeton University · *dvp*

Igor Klebanov is working on a broad range of problems in theoretical physics, including systems with large numbers of degrees of freedom and their dual descriptions. He is interested in field theoretic descriptions of critical phenomena. He is also working on certain gauge field theories which exhibit transitions between color confinement and screening.

Helmer Herman Koppelman

Galactic Dynamics, Galactic Archaeology · Institute for Advanced Study · *v/f*

Helmer Herman Koppelman's current research interests are the dynamics and formation history of the Milky Way, mainly focusing on its stellar halo. By combining theory, simulations, and data, Koppelman studies the assembly history of the local stellar halo and the (dark) matter profile of the Milky Way.

Nima Lashkari

Quantum Gravity, Quantum Field Theory, Quantum Information Theory · Purdue University · *v/f*

Funding provided by the National Science Foundation

Currently, the focus of Nima Lashkari's research is the study of non-perturbative phenomena in quantum field theory and gravity through the quantum lens.

Nicolas Lenner

Biophysics, Ecology, Evolution · Institute for Advanced Study

Funding provided by the Simons Foundation

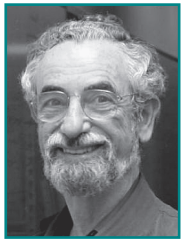
Nicolas Lenner's scientific background is in physics of dynamical biological systems, ranging from molecular dynamics to developmental processes of whole organisms. Lenner now wants to apply this dynamical systems perspective to problems in ecology and evolution. Lenner is particularly interested in the complex interactions of different organisms evolving in changing environments.

Adam Levine

Quantum Gravity, Quantum Information Theory · Institute for Advanced Study

Funding provided by the National Science Foundation

Adam Levine's research aims to understand the structure of entanglement in quantum field theories and quantum gravity. Levine uses techniques from the study of conformal field theories as well as quantum information theory and AdS/CFT.



Elliott H. Lieb

Mathematical Physics · Princeton University · *v*

Elliott H. Lieb's research interests include mathematical physics and mathematical analysis, especially functional analysis. In physics, his main interests are in condensed matter physics, statistical mechanics, and questions concerning stability of matter and atomic physics.

Dalimil Mazac

Quantum Field Theory · Institute for Advanced Study

Founders' Circle Member, in recognition of Edward and Kiyomi Baird; funding provided by the U.S. Department of Energy

Dalimil Mazac studies how quantum field theory and quantum gravity are constrained by their internal consistency. He has been developing analytic approaches to the conformal bootstrap.

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Lia Medeiros

Astrophysics · Institute for Advanced Study

Lia Medeiros is interested in using extreme astrophysical objects and phenomena to test fundamental theories of physics. Currently, she works on several aspects of the Event Horizon Telescope. Her work primarily focuses on theoretical simulations, but she will sometimes delve into data analysis as well.

Victor Mikhaylov

Biology · Institute for Advanced Study · *ra*

Victor Mikhaylov works in mathematical physics and biology, focusing on supersymmetric and topological quantum field theories, and the application of modern methods of data analysis to bioinformatical problems.

Sebastian Mizera

Theoretical Physics · Institute for Advanced Study

Frank and Peggy Taplin Member; additional funding provided by the U.S. Department of Energy

Sebastian Mizera's work focuses on aspects of scattering amplitudes in quantum field theory and string theory, as well as their relation to geometry and topology.

Gianluigi Mongillo

Systems Biology · Sorbonne Université

Funding provided by the Simons Foundation

Gianluigi Mongillo is a theoretical physicist interested in the quantitative understanding of the structure and the dynamics of biological neuronal networks. His current research focuses on (1) the impact of the spatial organization of synaptic afferents on a single neuron's integrative properties and (2) the relationship between synaptic properties and memory storage.

Elias Most

Theoretical Astrophysics · Institute for Advanced Study and Princeton University

Elias Most's research focuses on fundamental physics in the presence of strong gravity associated with compact objects. As a computational astrophysicist, Most performs large-scale numerical relativity simulations of merging neutron star binaries to elucidate the imprint of fundamental properties of the system on different observational channels.

Baurzhan Mukhametzhanov

Theoretical Physics · Institute for Advanced Study

Funding provided by the Simons Foundation

Baurzhan Mukhametzhanov is interested in various aspects of strongly coupled quantum field theories, especially in the context of holography and black hole physics. Mukhametzhanov's recent research has been focused on conformal bootstrap and thermalization.

Patrick Dean Mullen

Astrophysics · Institute for Advanced Study and Center for Computational Astrophysics

Funding provided by NASA

Patrick Dean Mullen's research focuses on the development and application of numerical tools for astrophysical magnetohydrodynamics. Mullen has performed cutting-edge numerical simulations of the planetary scale giant impact thought to have formed Earth's moon.

Elena Murchikova

Astrophysics · Institute for Advanced Study

William D. Loughlin Member

Elena Murchikova works on the interface between theoretical physics and observational astronomy. Her research interests span the Milky Way's Galactic Center, black hole accretion, exoplanets, star formation, neutron stars, and general relativity.

Sridip Pal

Quantum Field Theory · Institute for Advanced Study

Founders' Circle Member, in recognition of Tomislav and Vesna Kundic; funding provided by the U.S. Department of Energy

Sridip Pal is working to deeply understand quantum field theory, a framework to describe nature, from the theory of fundamental particles to collective phenomena in condensed matter, using symmetry-based arguments, especially scale invariance. Currently, Pal is working on two-dimensional conformal field theories and nonrelativistic avatars of these theories in different dimensions.

Matteo Parisi

Theoretical Physics, Combinatorics · Institute for Advanced Study and Harvard University

Matteo Parisi's research lies at the intersection of high-energy physics and combinatorics. His work focuses on novel combinatorial aspects of scattering amplitudes in quantum field theories, in relation to Grassmannians, amplituhedra, tropical geometry, and cluster algebras.

Geoff Penington

Theoretical Physics · University of California, Berkeley · *jvp*
IBM Einstein Fellow

Geoff Penington works on the connections between quantum information theory and quantum gravity. In particular, he is interested in understanding how information escapes from evaporating black holes.

Robert Penna

Theoretical Physics · Institute for Advanced Study
Funding provided by the U.S. Department of Energy

Robert Penna is interested in general relativity and mathematical physics. His recent research has focused on using infinite dimensional symmetries of general relativity to learn new things about black holes and gravitational waves.

Roman Rafikov

Astrophysics · University of Cambridge · *v*
Funding provided by The Ambrose Monell Foundation

Roman Rafikov works in the areas of planetary sciences, planet formation, N-body dynamics, fluid dynamics, accretion disks, and high-energy astrophysics.

Carolyn Raithel

Astrophysics · Institute for Advanced Study and Princeton University
John N. Bahcall Fellow

Carolyn Raithel is interested in using astrophysical observations of neutron stars to study the properties and interactions of matter at extreme densities. Her current research focuses on the gravitational waves emitted during neutron star mergers, using a mix of analytic theory and numerical simulations.

Riccardo Rao

Systems Biology · Institute for Advanced Study
Funding provided by the Simons Foundation

Riccardo Rao's research focuses on using the framework of thermodynamic models to investigate specific classes of chemical reaction networks, such as metabolic networks.

Phil Saad

Theoretical Physics · Institute for Advanced Study
Funding provided by the Simons Foundation

Phil Saad's research focuses on understanding signatures of quantum microstructure in quantum gravity, especially in the context of black holes. Saad uses simple toy models and techniques from the study of quantum chaos to shed light on these problems.

Subir Sachdev

Theoretical Physics · Harvard University · *dvp*
Maureen and John Hendricks Distinguished Visiting Professor

Subir Sachdev studies the diverse varieties of quantum-entangled states of modern materials. These include states with topological order and states without quasiparticle excitations. His work connects to modern developments in quantum field theory and quantum gravity, and also to experiments on high-temperature superconductors.

Giulio Salvatori

High-Energy Physics · Institute for Advanced Study
Friends of the Institute for Advanced Study Member

Giulio Salvatori is mostly interested in the study of scattering amplitudes. In this context, he has been investigating the connection between positive geometries, such as the amplituhedron, and amplitudes. Salvatori has also been working on semi-analytical techniques for the computation of Feynman diagrams necessary for processes being studied at the Large Hadron Collider.

Alessandro Sfondrini

Theoretical Physics · Università degli Studi di Padova
IBM Einstein Fellow

Alessandro Sfondrini is doing research in quantum field theory and string theory using exact techniques from the theory of integrable models and conformal field theory.

Alfred Shapere

Theoretical Physics · University of Kentucky
IBM Einstein Fellow

Alfred Shapere is currently studying how quantum field theories encode information and, in particular, how error-correcting codes are embedded in conformal field theories and topological field theories. He is also continuing his study of time crystals and their applications.

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Wilbur Shirley

Theoretical Physics · Institute for Advanced Study

Funding provided by the Simons Foundation

Wilbur Shirley works at the intersection of condensed matter physics and quantum information. He is interested in topological, fractonic, and critical states of matter.

Alexandre Streicher

High-Energy Theory · Institute for Advanced Study and Perimeter Institute for Theoretical Physics

Founders' Circle Member, in recognition of Carl P. Feinberg; funding provided by The Ambrose Monell Foundation

Alexandre Streicher studies quantum gravity, holography, and quantum chaos. He studies dynamical phenomena and is pursuing a more general understanding of how many internal degrees of freedom can conspire to form higher-dimensional gravity, e.g. emergent patterns in operator dynamics, such as epidemics among internal degrees of freedom.

Rashid Sunyaev

Astrophysics · Max-Planck-Institut für Astrophysik · *dvp*

Maureen and John Hendricks Distinguished Visiting Professor

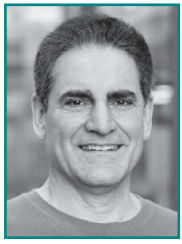
Rashid Sunyaev has made major contributions in the fields of physical cosmology and high-energy astrophysics. His current research interests include the cosmological recombination of hydrogen and helium, the physics of gas accretion onto neutron stars and black holes, the problem of matter, and radiation interaction under extreme astrophysical conditions.

Elizabeth Ann Tolman

Plasma Physics · Institute for Advanced Study

Funding provided by the W. M. Keck Foundation Fund

Elizabeth Ann Tolman studies a wide range of problems in plasma physics. Currently, she is particularly interested in reconnection in weakly ionized astrophysical plasmas and in wave generation and propagation in pulsar magnetospheres. She has also studied fusion plasmas and the energetic particle-driven instabilities they experience.



Salvatore Torquato

Statistical and Condensed Matter Physics · Princeton University

Salvatore Torquato's research is centered in statistical physics and condensed matter theory. He seeks unifying and rigorous principles to explain a broad range of phenomena, especially the interplay between physics and geometry. Topics include quantifying disorder/order in condensed phases, jammed states, sphere packings, random media, degenerate ground states, and hyperuniformity.

Gustavo Joaquin Turiaci

Theoretical Physics · Institute for Advanced Study

Founders' Circle Member, in recognition of Dipal and Rupal Patel; funding provided by the National Science Foundation

Gustavo Joaquin Turiaci is interested in the interplay between quantum mechanics and gravity. He has worked on low-dimensional gravity and Sachdev-Ye-Kitaev models, quantum chaos, near extremal black holes, and conformal field theory more broadly.

Digvijay Wadekar

Cosmology, Astroparticle Physics · Institute for Advanced Study

Friends of the Institute for Advanced Study Member

Digvijay Wadekar's research is at the intersection of cosmology, astroparticle physics, and machine learning. Wadekar has worked on cosmological inference from galaxy surveys, probing non-standard dark matter using dwarf galaxies, and machine learning to emulate expensive hydrodynamic simulations.

Benjamin Wallisch

Cosmology · Institute for Advanced Study and University of California, San Diego

Benjamin Wallisch's research focuses on cosmological probes of fundamental physics. He is interested in using observations of the cosmic microwave background and the large-scale structure of the universe to extract clues about the laws of nature, both within the Standard Model and beyond.

Joshua Winn

Astrophysics · Princeton University

Joshua Winn is working on exoplanet detection and characterization, as well as the geometry of exoplanet systems.

George Nathaniel Wong

Astrophysics · Institute for Advanced Study and Princeton University

Funding provided by Schmidt Futures

George Nathaniel Wong uses numerical methods and analytic modeling to study high-energy astrophysical phenomena, especially in the context of accretion onto supermassive black holes. He is interested in predicting observational signatures of the connection between black holes and relativistic jets as might be observed by next-generation experiments.

Siyao Xu

Magnetohydrodynamic Turbulence, Turbulent Dynamo · Institute for Advanced Study

NASA Hubble Fellow

Siyao Xu studies the fundamental physics of magnetohydrodynamic (MHD) turbulence, turbulent dynamo, and particle transport in MHD turbulence. The theoretical findings are applied to studying diverse astrophysical problems, including cosmic rays, (first) star formation, magnetic reconnection, and particle acceleration in high-energy astrophysical environments.

Lai-Sang Young

Dynamical Systems · New York University · *v/f, dvp/s*

Funding provided by the Simons Foundation

Lai-Sang Young plans to continue working in the rigorous analysis of large and complex dynamical systems, focusing on introducing biology-inspired models into the field. Young will also continue working in computational neuroscience.

Barak Zackay

Astrophysics · Institute for Advanced Study

Barak Zackay is developing novel statistical and algorithmic techniques for discovering exciting astrophysical objects, such as pulsars, fast radio bursts, gravitational waves, supernovae, and exoplanets. He has developed various astrophysical image processing methods, including proper image subtraction.

Nadia Zakamska

Astrophysics · Johns Hopkins University

J. Robert Oppenheimer Visiting Professor; additional funding provided by the Bershadsky Fund

Nadia Zakamska's research interests range from extrasolar planets to extragalactic astronomy. Most recently, she has been focused on long-standing puzzles in the evolution and dynamics of binary stars, and on discovery of binaries of compact stellar remnants.

School of Social Science

Administrative Officer: Miriam Harris

Founded in 1973, the School of Social Science takes as its mission the analysis of contemporary societies and social change. It is devoted to a pluralistic and critical approach to social research, from a multidisciplinary and international perspective. Operating under the guiding principles of informality and collegiality, and with a shared understanding that the social sciences are not to be narrowly defined, the School brings together scholars with various perspectives, methods, and topics, providing space for intellectual debate and mutual enrichment. Scholars are drawn from a wide range of fields, notably political theory, economics, law, psychology, sociology, anthropology, history, philosophy, and literature, to examine historical and contemporary problems.

Each year, the School designates a theme, which is neither exclusive nor excluding. The theme for the 2021–22 academic year is "Political Mobilizations and Social Movements," led by Wendy Brown, UPS Foundation Professor, and Didier Fassin, James D. Wolfensohn Professor, in collaboration with Alondra Nelson, Harold F. Linder Professor.

There has been, in recent years, a revival and renewal of political mobilizations and social movements across the world in terms of claims as well as forms. From Hong Kong to Santiago, from Beirut to Algiers, massive demonstrations have shaken state apparatuses, provoking democratic reforms or passive resistance, prompting the fall of governments or brutal repressions. In parallel, from gay rights to ecofeminism, from humanitarianism to veganism, numerous initiatives have raised awareness regarding issues related to various expressions of injustice and domination, and have sometimes generated major cultural transformations of contemporary societies. Whereas these progressive mobilizations and movements have received much attention, there has also been a resurgence of reactionary, conservative and anti-democratic responses grounded in traditionalist, fundamentalist, nationalist, xenophobic, racist, sexist and anti-feminist ideologies, which have been less studied and deserve more scrutiny. In light of this remarkable diversity, from left to far-right, we would like to revisit two related classical themes of the social sciences: contentious politics and collective action.

How are these manifestations of discontent about the current state of affairs to be apprehended? What do they signal about present moral, political and social crises? What do they reveal about people's capacity to rise up even under authoritarian regimes? Are novel modes of organization being tested? Are new repertoires of action being invented? Which place does violence or, conversely, civil disobedience occupy? Under which conditions can they succeed, or on the contrary, be crushed? What are the role and responsibility of the academia with regard to these protests? Which possible articulations can there be between critical theory and such mobilizations and movements? These are some of the questions we would like to address via a conversation across the disciplines of the social sciences and the humanities.

Wendy Brown

UPS Foundation Professor

Wendy Brown is a political theorist who works across the history of political thought, political economy, Continental philosophy, cultural theory, and critical legal theory. Brown investigates the subterranean powers shaping contemporary Euroatlantic polities, with particular attention to the political identities, subjectivities, and expressions they spawn. Across her work, Brown aims to illuminate powers unique to our era and the predicaments they generate for democratic thought and practice.

Didier Fassin

James D. Wolfensohn Professor

An anthropologist and a sociologist who has conducted fieldwork in Senegal, Ecuador, South Africa, and France, Didier Fassin was initially trained as a physician in internal medicine and public health. He later developed the field of critical moral anthropology, which explores the historical, social, and political signification of moral forms involved in everyday judgment and action. His recent work is on the theory of punishment, the politics of life, and the public presence of the social sciences, which he presented for the Tanner Lectures, the Adorno Lectures, and at the Royal Swedish Academy of Sciences, respectively. Recipient of the Nomis Distinguished Scientist Award, he is currently involved in a global program on crises, examining, in particular, the cases of migrants and refugees. For his course at the Collège de France, he explores contemporary stakes in public health, with special reference to the coronavirus pandemic.

Alondra Nelson

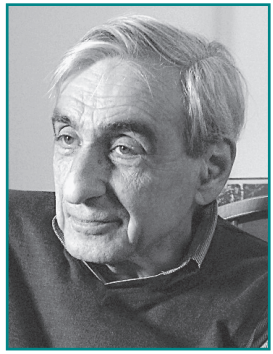
Harold F. Linder Professor

An acclaimed sociologist, Alondra Nelson explores questions in science, technology, and social inequality. Nelson's work offers a critical and innovative approach to the social sciences in fruitful dialogue with many disciplines. Her major research contributions are situated at the intersection of racial formation and social citizenship, on the one hand, and emerging scientific and technological phenomena, on the other. She is currently at work on a book about science politics in the Obama administration. In 2021, she was appointed by President Joe Biden to the position of Deputy Director for Science and Society in the Office of Science and Technology Policy. Nelson is the first person in this role, which brings social science expertise explicitly into the work of federal science and technology strategy and policy.

Joan Wallach Scott

Professor Emerita

Joan Scott's groundbreaking work has challenged the foundations of conventional historical practice, including the nature of historical evidence and historical experience and the role of narrative in the writing of history. Broadly, the object of her work is the question of difference in history: its uses, enunciations, implementations, justifications, and transformations in the construction of social and political life. Scott's recent books have focused on the vexed relationship of the particularity of gender to the universalizing force of democratic politics.



Michael Walzer

Professor Emeritus

One of America's foremost political thinkers, Michael Walzer has written about a wide variety of topics in political theory and moral philosophy, including political obligation, just and unjust war, nationalism and ethnicity, economic justice, and the welfare state. He has played a critical role in the revival of a practical, issue-focused ethics and in the development of a pluralist approach to political and moral life. Currently, he is working on issues having to do with international justice and the connection of religion and politics, and also on a collaborative project focused on the history of Jewish political thought.

Daniel Agbiboa

Political Sociology · Harvard University
AMIAS Member

Daniel Agbiboa's research focuses on the relationships between state and non-state actors, especially in the context of political violence and city life. While at IAS, he will research the #ENDSARS protests against police brutality in Nigeria

Anthony Alessandrini

Cultural Politics, Decolonization Studies · Kingsborough Community College, The City University of New York

Anthony Alessandrini's project focuses on the Solidarity Academies (Dayanışma Akademileri), a loose network of public education projects established by scholars victimized by a state purge of academics in Turkey, as part of a book-in-progress on community education as political praxis.

Zahra Ali

Sociology · Rutgers University in Newark

Zahra Ali's book project, "Up-rising/انت ـ فاضة and the Political Imagination," explores issues of life, space, and emancipation. It considers the recent uprising in Iraq as a framework of analysis to understand power and violence in the contemporary capitalist world.

Minou Arjomand

Theater and Performance Studies · The University of Texas at Austin · *v*

Minou Arjomand's research focuses on the relationship between aesthetic experience and political action. Arjomand's current project turns to radio in order to understand how people share stories in times of social upheaval, mass migration, and rapid technological change.

Magali Bessone

Political Philosophy, Critical Theory of Race · Université Paris 1
Funding provided by the Florence Gould Foundation Fund

Magali Bessone's research focuses on contemporary theories of justice (distributive, criminal, reparatory, transformative) in relation to critical theories of race and racism. While at IAS, she will be working on a book that explores the norms, values, and affects of a moral economy of anti-racism in France.

Debaditya Bhattacharya

Histories of Higher Education · Kazi Nazrul University, Asansol, India

Debaditya Bhattacharya's current interests cohere around a 'historical sociology' of higher education, with specific attention to Indian policy contexts. His recent work, including his research at IAS, attempts a history of the difficult negotiations between the (neo)liberal university and radical social movements.

Keisha N. Blain

History · University of Pittsburgh

Friends of the Institute for Advanced Study Member

Keisha N. Blain is a historian of the twentieth-century United States with broad interdisciplinary interests and specializations in African-American history, the modern African diaspora, and women's and gender studies. She is now writing a book on Black women and the struggle for human rights from 1865 to the present.

Julien Brachet

Geography · Université Paris 1 · *v*

Julien Brachet is interested in the practices and politics of mobilities between sub-Saharan and northern Africa. While at IAS, he will research how international humanitarian and security interventions carried out in the Sahara challenge local state sovereignty and democratic control.

William Callison

Political Theory · Lafayette College

William Callison's research connects the history of political and economic thought to contemporary social movements in Europe and the Americas. At IAS, he is writing a book about the transformation of neoliberalism and its relation to far-right nationalism.

Angela B. Cornell

Labor Law, Human Rights · Cornell Law School · *v*

The primary focus of Angela B. Cornell's research and teaching has been labor law, including international and comparative labor law. Much of her work is centered both domestically and internationally on workers' collective rights, in particular on freedom of association.

Marc de Leeuw

Philosophy and Law · University of New South Wales · *v*

Marc de Leeuw's research concerns the edges of law on domains that, due to radical technological change or ruptures in our ethical imagination, require legal consideration in a philosophical register: the legal standing of collective ecological entities, the fashioning, use, and ownership of human body parts, and the legal status of nonhuman minds.

Marielle Debos

Political Science · Université Paris Nanterre

Richard B. Fisher Member

Marielle Debos has written on political violence, armed conflicts, and France's (post)colonial policy in Africa. She is currently working on a book project titled "Biometrics and the Promise of Democracy in Africa."

Anne-Claire Defossez

Sociology · Institute for Advanced Study · *v*

Anne-Claire Defossez will be writing a book on women and politics in France. Defossez will also work on field data collected on the French-Italian border regarding migrations from African and Middle Eastern countries to analyze their legal, social, and economic features and the tensions between states' repression and local solidarity.

Tanisha C. Ford

Black Women, Philanthropy, Social Justice Movements · The Graduate Center, The City University of New York

Roger W. Ferguson, Jr. and Annette L. Nazareth Member

Tanisha C. Ford's project, "Our Secret Society: America's Forgotten Black Philanthropists for Racial Justice," is a cultural-economic history of the Civil Rights movement that explores how Black women raised millions of dollars for movement organizations by hosting lavish galas, fashion shows, and card parties for an interracial audience.

Jill Frank

Political Science, Classics · Cornell University

Jill Frank explores the capacity of ancient Greek texts to defamiliarize contemporary politics in radically democratic directions. At IAS, she is developing the ancient idea of geometric equality to challenge notions of equality as a kind of given sameness that have underwritten U.S. jurisprudence since Plessy v. Ferguson (1896).

Lawrence B. Glickman

American History · Cornell University · *v/f*

Lawrence B. Glickman is interested in cultural, intellectual, and political history. He has written three books, including, most recently, *Free Enterprise: An American History* (2019). While at IAS he will be researching a book on how "backlashes" have shaped American politics since the Civil War.

Aslı Iğsız

History of the Present, Cultural Politics · New York University

Aslı Iğsız is interested in political violence, eugenics, humanism, spatial segregation and forced migration, critical theory, and cultural policy. Her work addresses the implications of the past in the present. While at IAS, Iğsız will work on fascism and examine its reincarnations in the contemporary world context.

Biko Koenig

Politics · Franklin & Marshall College

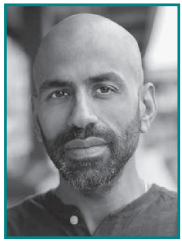
Ralph E. and Doris M. Hansmann Member

While at IAS, Biko Koenig will work on an ethnographic book project that follows the 2020 Trump reelection campaign from his perspective as a volunteer. Thematically, the project examines the political discourse of modern populism among working-class people in America's Rust Belt.

Katherine Lemons

Anthropology · McGill University · *v*

Katherine Lemons's research interests are in the anthropology of Islam, law and kinship in India and Canada. She teaches social theory and the anthropology of religion, law, and politics. At IAS, she will work on her current book project, an institutional ethnography of one of India's foremost Islamic legal and political institutions.



Zachariah Mampilly

Political Science · Marxe School of Public and International Affairs, The City University of New York

Zachariah Mampilly works on both violent and nonviolent movements for political transformation, with a focus on Africa and South Asia. Mampilly's previous work has focused on governance by armed groups and the rise of popular protest movements in Africa and beyond.

Robyn Marasco

Political Theory · Hunter College, The City University of New York

Robyn Marasco teaches the history of political thought and contemporary political theory. Her research interests are in critical theory, feminism, and psychoanalysis. Her work has focused on the place of the passions in political life. While at IAS, she will be working on a book about critical theory, politics, and the family.

Emily Merchant

History of Science · University of California, Davis

Emily Merchant's current research focuses on the eugenic nexus between the social sciences, molecular genetics, and assisted reproductive technologies since the mid-twentieth century.

Jorge Núñez

Anthropology · Kaleidos – Centro de Etnografía Interdisciplinaria, Universidad de Cuenca · *v*

Jorge Núñez is interested in financial speculation carried out by everyday people, and how citizens develop playful engagements with debt and financialization in Southern Europe and Latin America. While at IAS, Núñez will finish his book manuscript "Markets of Excitement: Playing with Debt in Times of Austerity in Catalonia."

Cecilia Palmeiro

Cultural Studies, Gender Studies · New York University Buenos Aires and Universidad Nacional de Tres de Febrero

Cecilia Palmeiro is an Argentinean scholar, a writer, and an activist. Her academic background is focused on critical theory, literary studies, and gender studies. She is now writing a book on the Ni Una Menos collective in Argentina and the Global Feminist Tide, from the perspective of its aesthetic and micropolitical revolution.

Kenneth M. Roberts

Government, Political Science · Cornell University

Kenneth M. Roberts studies comparative and Latin American politics, with a focus on popular movements and crises of democratic representation. Roberts's current research lies at the intersection of populism, social movements, and political parties, analyzing movements that try to restrict or expand democratic rights in Latin America, Europe, and the United States.

Elizabeth Saleh

Anthropology · American University of Beirut

Elizabeth Saleh works in the fields of political and economic anthropology. Her current ethnographic study is about the lives of underage Syrian waste pickers growing up at a Beirut scrapyard. While at IAS, she intends to finalize her manuscript which tells the story of the labor and caring practices of this scrapyard community.

Judith Scheele

Social Anthropology · École de Hautes Études en Sciences Sociales, Paris
Wolfensohn Family Member

Judith Scheele's primary interest is the Sahara and neighboring areas. She has carried out long-term fieldwork in Algeria, Mali, and Chad. At IAS, she is hoping to complete a book on the region, and on the ways in which current upheavals there might help us rethink political anthropology.

Andrea Sempértegui

Sociology and Anthropology · *v*

Andrea Sempértegui's research interests include social movements, Indigenous politics, and conflicts over natural resource extraction. At IAS, she will be working on a book about the territorial struggle of the Mujeres Amazónicas, a group of Indigenous leaders who have organized against extractive projects in the Ecuadorian Amazon.

Matthew Shafer

Political Theory · Andrea Mitchell Center for the Study of Democracy, University of Pennsylvania

Matthew Shafer's research examines the politics of language and the language of politics in contemporary technological capitalism. At IAS, he is completing a critical history of contemporary debates about how the term "violence" should be defined in political theory and deployed in political rhetoric.

Harel Shapira

Sociology · The University of Texas at Austin

Harel Shapira is an ethnographer whose research focuses on gun culture, militias, and right-wing politics.

Alicia Steinmetz

Political Theory · Stanford University · *v*

Alicia Steinmetz's research focuses on ancient and early modern political thought and its significance for the dilemmas of democratic politics today. At IAS, she is completing a book about the parasitism of reason on imagination from Montaigne to Kant.

Maka Suarez

Anthropology · University of Oslo

Maka Suarez works in the fields of economic, political, and medical anthropology. She will be working on her book manuscript, "Against the Odds: Activism, Debt, and Labor in Times of Crisis," an ethnographic account of predatory financial inclusion of Ecuadorian migrants in Spain and their political engagement to face over-indebtedness.

Sonja van Wichelen

Sociology, Anthropology · The University of Sydney · *f*

Sonja van Wichelen's research takes place on the cross-disciplinary node of law, life, and science in a globalizing world. Van Wichelen's current focus is on "biolegality" and examines the constitutive relation between biology and law in the formation of knowledge and sociality.

Deborah R. Vargas

Sociology of Culture, Feminist and Queer Studies · Rutgers, The State University of New Jersey

Deborah R. Vargas's research draws from queer of color critique, critical race feminism, Chicana/Latina studies, oral histories, borderlands theory, and queer ethnography to pose questions related to queer sexuality, racialized gender, cultural productions, and working/underclass aesthetics.

Yves Winter

Political Theory · McGill University

Yves Winter teaches history of political ideas and social/political theory. His research interests include Machiavelli and critical theory. Thematically, his work focuses on violence, political order, and the collective imagination. While at IAS, he is working on a book project on social and political imaginaries.

f First Term · *s* Second Term · *v* Visitor

Program in Interdisciplinary Studies

The Program in Interdisciplinary Studies explores different ways of viewing the world, spanning a range of disciplines from physics and astrophysics, geology, paleontology, and biology, to artificial intelligence, cognitive psychology, and philosophy. The most recent interdisciplinary focus is on questions related to the origins and nature of cognition. The program is headed by Professor Piet Hut.

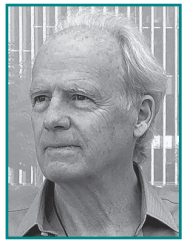
FACULTY

Piet Hut

Professor

Piet Hut is head of the Program in Interdisciplinary Studies at IAS. The program's main research theme is "the Nature of Reality," as seen through the lenses of Math, Matter, and Mind: for Math, "Algorithms and Foundations"; for Matter, "Physics and Biology"; and for Mind, "Phenomenology and Contemplation." Hut's main research background is in computational astrophysics, with asteroid "17031 Piethut" named in his honor. He is one of the co-founders of the Earth-Life Science Institute at the Tokyo Institute of Technology. His current book project topics include a typology of novelty and rekindling natural philosophy.

VISITORS



Stephen Burlingham

Art and Science

Stephen Burlingham uses visual arts as a medium to explore awareness through a focus on the tangible-intangible divide. Central for him is the paradox that our experience of self and world is sculpted equally by the seen and the unseen. His current project is a TV series on the question of "What Is Consciousness?" and the many people throughout history who have tried—and are still trying—to answer it.

Erica A. Cartmill

Anthropology, Psychology · University of California, Los Angeles

Erica A. Cartmill studies the acquisition and evolution of human language. Her work links biological and linguistic theory, and involves both comparative and developmental approaches to communication. She is the co-founder and co-director of the Diverse Intelligence Summer Institute, an interdisciplinary exploration of the diversity and nature of the mind across biological and artificial worlds.

Will Cavendish

Science Communication

Will Cavendish is a mathematician and filmmaker interested in how scientific and mathematical knowledge is communicated both between experts and to the public. His current film project explores the ideas of John Horton Conway.

Jacob Gates Foster

Computational Social Science, Collective Intelligence · University of California, Los Angeles

Jacob Gates Foster aims to understand how complex wholes become smarter than their parts. He uses tools from machine learning and complexity science to study the social production of collective intelligence, the evolutionary dynamics of ideas and institutions, and the relationship between culture and cognition. He blends computational and mathematical techniques with insights from science studies and social theory to clarify key ideas and develop new conceptual frameworks.

Eiko Ikegami

Historical Sociology · The New School

Eiko Ikegami specializes in the historical sociology of Japan. At IAS, she will work on her research program on the various forms of diverse intelligence generally, and her digital research on autistic individuals in virtual worlds. Central to her project is the use of avatars in virtual environments and the virtual ethnography that allows her to access the experiences and worldviews of autistic adults.

Alexander A. Kaurov

Astrophysics, Sociology and Science Communication · Institute for Advanced Study

Alexander Kaurov's research interests range from astronomy and astrophysics to data-driven sociology. At IAS, he explores novel means of engaging the public in science as well as studies their effectiveness.

Jun Makino

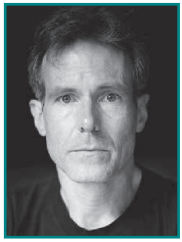
Astrophysics, Computational Science · Kobe University

Jun Makino is working on stellar dynamics of globular clusters, galactic dynamics, and planet formation, using mainly large-scale numerical simulations. He is also working on numerical methods for these simulations, parallel computing schemes, and developments of specialized and general-purpose computers for simulations in these areas and other fields.

Michael Th. Rassias

Mathematical Analysis, Analytic Number Theory · Universität Zürich

Michael Th. Rassias's research interests lie in mathematical analysis, analytic number theory, and more specifically in exponential/trigonometric sums, zeta functions, approximation theory, functional equations, and analytic inequalities. He is also interested in the distribution of prime numbers, the analytic investigation of elliptic curves, and cryptography.



D. Eric Smith

Origin of Life · Georgia Institute of Technology and Tokyo Institute of Technology

D. Eric Smith studies the origin of life from the perspectives of biochemistry, microbiology, geochemisty, and statistical physics.

Edwin L. Turner

Astrophysics · Princeton University

Edwin L. Turner is working on statistical biases and estimators for samples of exoplanets, the Strategic Exploration of Exoplanets and Disks with Subaru project, and implications of complexity in cellular automata systems for the limits of reductionism, as well as related topics in the philosophy of science.

Mark van Atten

Philosophy of Logic and Mathematics, Phenomenology, Idealistic Philosophy · Archives Husserl de Paris, Centre National de la Recherche Scientifique

Mark van Atten's is working to build bridges between Brouwer's intuitionism in mathematics, Husserl's phenomenology, and contemplative traditions.

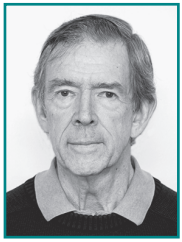
Harald Wiltsche

Philosophy of Science · Linköping University

Harald Wiltsche is a philosopher working at the intersection between philosophy of science, epistemology, and phenomenology. What interests Wiltsche is how bodily-, socially-, and historically-situated subjects gain knowledge about reality by means as diverse as thought experiments, mathematical models, or scientific instruments.

Director's Visitors

DIRECTOR'S VISITORS CONTRIBUTE MUCH to the vitality of the Institute. Scholars from a variety of fields, including areas not represented in the Schools, are invited to the Institute for varying periods of time, depending on the nature of their work.



Curtis Callan

Theoretical Physics, Biology · Princeton University

Curtis Callan is a theoretical physicist with broad interests in quantum field theory and statistical physics. He is currently working on problems in biology, with a focus on gene regulation: how it works mechanistically, how it manages to achieve rather precise results in the face of noise, and how it evolved (and evolves).

Graham Farmelo

History of Science · University of Cambridge · *f*

Graham Farmelo is researching and writing the authorized biography of Stephen Hawking, to be published internationally in 2024. During his visit, Farmelo will be using the Institute's libraries and the Shelby White and Leon Levy Archives Center. He also hopes to have opportunities to talk with the many Faculty and others at the Institute who are familiar with Hawking's work and knew him.

Rush Holt

Science and Society

Rush Holt is interested in understanding the appropriate place of science in a democratic society and is considering how society can attain that position.

Anna Laqua

Literary Studies, History of Theater

Anna Laqua is investigating the transfer of early modern knowledge between medicine and the theater. The starting point of her research is the historical figure John Bulwer (1606–1656), a London physician and Baconian who had a special interest in theater culture.

f First Term · *s* Second Term

Lorenza Pescia De Lellis

Italian Studies, History of Romance Philology · Institute for Advanced Study

One main focus of Lorenza Pescia De Lellis's current research is the influence of translation in multilingual society. Other topics she is working on include the history of the romance philology, linguistic analysis of discourses about women in Italian and Swiss Italian newspapers, as well as the Italian language and sexism.

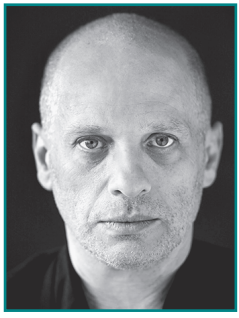
Siobhan Roberts

Independent Scholar · *s*

Siobhan Roberts is a Canadian author and science journalist. Together with Helmut Hofer, she is writing a biography of the mathematician Andreas Floer. She is also working on a biography of the mathematical logician Verena Huber-Dyson, which is forthcoming from *Pantheon*.

Artist-in-Residence Program

THE ARTIST-IN-RESIDENCE PROGRAM was established in 1994 to underscore the Institute's dedication to scholarly and artistic endeavors. Unrestrained curiosity, risk-taking, and even blind faith are concepts native to transformative research and the visual and performing arts. As part of the Artist-in-Residence Program, a pioneering artist is appointed to join the Institute community and curate the Edward T. Cone Concert Series, pursue their creative and intellectual work, and exchange ideas with scholars from all disciplines. Composer David Lang was appointed as Artist-in-Residence in 2015. In 2021–22, Lang continues his VIRTUOSITY program, an exploration of mastery, meaning, and experience.



David Lang

Composer

David Lang is a Pulitzer Prize–winning composer whose recent works include the following: his opera *prisoner of the state*, which premiered in June 2019 with the New York Philharmonic; the score for Paolo Sorrentino's film *Youth*, which received Academy Award and Golden Globe nominations; *man made*, a concerto for Sō Percussion and orchestra; *anatomy theater*, an opera written in collaboration with visual artist Mark Dion; *the public domain*, a commission from Lincoln Center for one thousand amateur singers; and *the loser*, an opera based on the novel by Thomas Bernhard, for which Lang served as librettist, composer, and stage director. Lang is Professor of Music Composition at the Yale School of Music, and Co-Founder and Co-Artistic Director of New York's legendary music festival Bang on a Can.

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Information Technology Group

James Stephens
Information Technology Manager
School of Natural Sciences Computing

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AiR Artist-in-Residence · *D* Director · *DV* Director's Visitor · *IS* Program in Interdisciplinary Studies
SHS School of Historical Studies · *SM* School of Mathematics · *SM-KEF* Karen Edge Fellow
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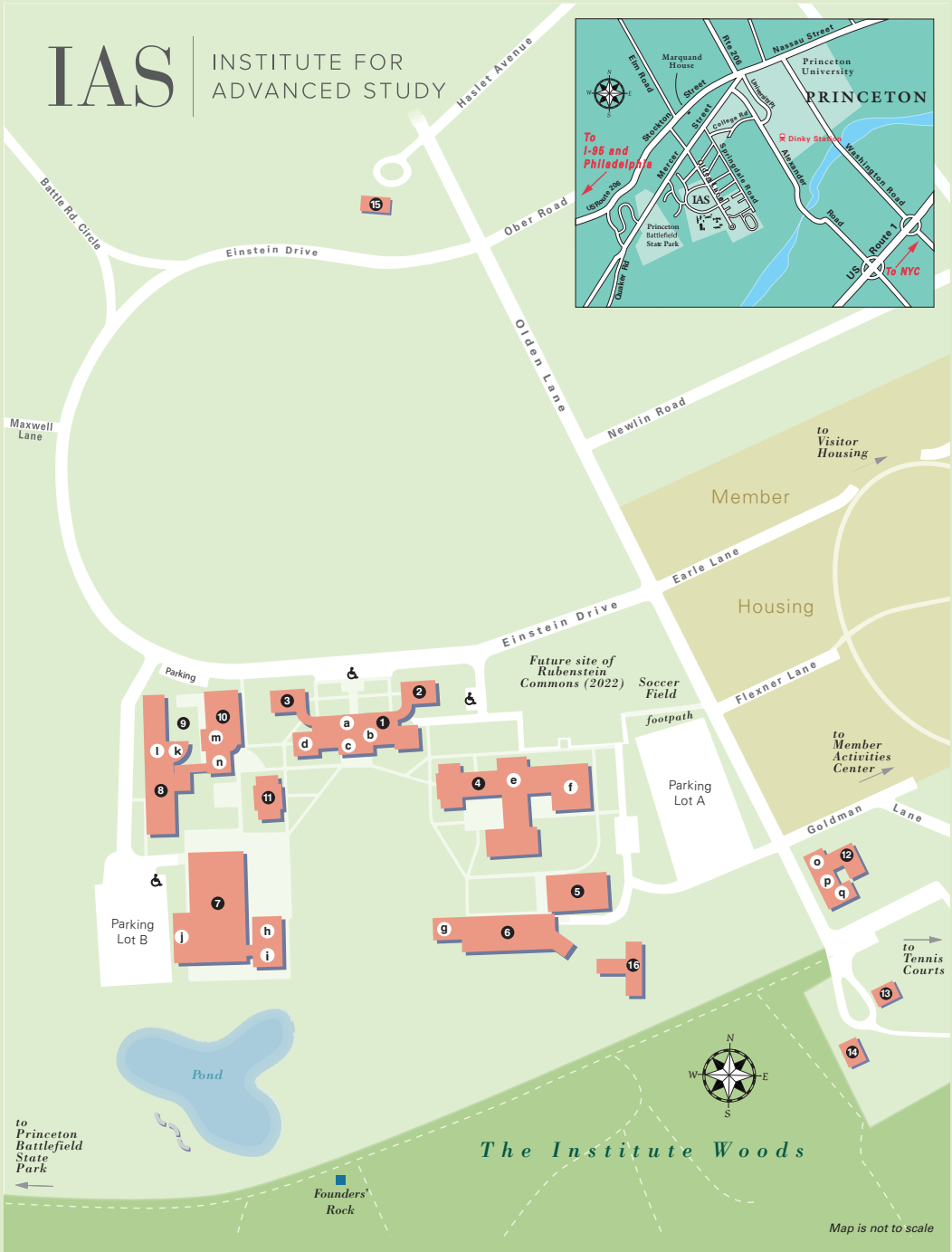

1 Fuld Hall
- **a** Reception
- **b** Mathematics–Natural Sciences Library (second floor)
- **c** Common Room
- **d** Director's Office

2 Building A

3 Building B

4 Bloomberg Hall
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5 Wolfensohn Hall

6 Simonyi Hall
- **g** Lecture Hall

7 Historical Studies–Social Science Library
- **h** The Shelby White and Leon Levy Archives Center
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8 West Building
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- **l** Seminar Room (second floor)

9 Birch Garden

10 Marilyn and James Simons Hall
- **m** Dining Hall (first floor)
- **n** Dilworth Room (first floor)

11 Building D

12 ECP Building (225 S. Olden Lane)
- **o** Crossroads Nursery School
- **p** Fitness Center
- **q** Business Office

13 310 S. Olden Lane

14 320 S. Olden Lane

15 Olden Farm (97 Olden Lane)

16 Modular Office Space

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