

# RECORD OF EVENTS

## School of Historical Studies

### ANCIENT STUDIES ACTIVITIES

#### October 1

Ancient Studies Seminar + *New Epigraphic Evidence for the Cults of Aphrodisias* + **Angelos Chaniotis**, Professor, School of Historical Studies

#### October 15

Ancient Studies Seminar + *The Poem of Hyssaldomos of Mylasa* + **Christopher Jones**, Harvard University; Institute for Advanced Study

#### November 12

Ancient Studies Seminar + *Understanding Late Antique Petra* + **Zbigniew Fiema**, University of Helsinki; Member, School of Historical Studies

#### November 19

Ancient Studies Seminar + *Paradoxes of parrhesia* + **Hartmut Leppin**, Goethe Universitaet; Member, School of Historical Studies

#### December 10

Ancient Studies Seminar + *Historical Determinants of Statue Production, Use and Re-use in Late Antiquity* + **Esen Ogüs**, Austin Peay State University; Member, School of Historical Studies

#### January 28

Ancient Studies Seminar + *The 'Koinon of the 13 Cities' in the Light of New Inscriptions from Sardis* + **Martin Hallmannsecker**, University of Oxford

#### February 11

Ancient Studies Seminar + *The Polis as a Stage: Theatricality and Illusion in the Long Hellenistic Age* + **Angelos Chaniotis**, Professor, School of Historical Studies

#### February 25

Ancient Studies Seminar + *The Aksumite Ruler Ezana and Accounts of the Conversion of Ethiopia to Christianity* + **Aaron Butts**, The Catholic University of America; Member, School of Historical Studies

#### March 6

Epigraphic Friday + *Petrified Wit: Humor in Greek Inscriptions* + **Angelos Chaniotis**, Professor, School of Historical Studies + *The Honorific Decree for Neikeratos of Olbia and Hellenistic Oratory* + **Emyr Dakin**, City University of New York + *The 'Pride of Halikarnassos' and its Audience* + **Jeremy McInerney**, University of Pennsylvania + *The Menogeneion at Sardis* + **Christopher Jones**, Harvard University;

Institute for Advanced Study + *Eunoia and enous: Interstate Relations and Personal Politics* + **Maria Xanthou**, Princeton University + *New inscriptions from Lyttos (Crete)* + **Georgios Tsolakis**, Institute for the Study of the Ancient World; New York University + *Le décret de Mylasa pour Xénodamos* + **Thibaut Boulay**, University of Tours; Member, School of Historical Studies + *The Worship of Cybele on the Thracian Coast of the Black Sea in the light of two inscriptions from Iasos and Priene* + **Dobrinka Chiekova**, The College of New Jersey + *A List of Priests from Scythopolis/Beth Shean (SEG VIII 33)* + **Kyle Mahoney**, Swarthmore College + *New Inscriptions from Hegra* + **Zbigniew Fiema**, University of Helsinki; Member, School of Historical Studies + *Maryamat, a Qatabanian Trade City Recently Rediscovered* + **Christian Robin**, Centre National de la Recherche Scientifique; Member, School of Historical Studies

#### March 24

Ancient Studies Seminar + *The Monastic Transformation of Graeco-Roman Popular Theater: A Corpus and Theory of Ancient Christian Comedy* + **Paul Dilley**, University of Iowa; Member, School of Historical Studies

#### March 31

Ancient Studies Seminar + *The Christians in the Cities of the Roman Empire at the End of the 3rd Century* + **Anne-Valéry Pont**, Sorbonne Université; Member, School of Historical Studies

#### April 7

Ancient Studies Seminar + *(Re)Constructing the Past in Roman Corinth and Sparta* + **Wolfgang Havener**, Heidelberg University; Princeton University

#### April 14

Ancient Studies Seminar + *Spying and Waterboarding. The Role of the Laity in Controlling Clerical Misconduct in Late Antique North Africa* + **Michael Hahn**, University of Munich

### ART HISTORY ACTIVITIES

#### October 3

Art History Seminar + *First term introductions + short presentations by the participants* + **Yve-Alain Bois**, Professor, School of Historical Studies

#### October 10

Art History Seminar + *First term introductions + short presentations by the participants (suite)* + **Yve-Alain Bois**, Professor, School of Historical Studies

#### October 17

Art History Seminar + *Coming and Going, or, On Being (and Not Being) Attached: Artists on the Move in the Middle Ages* + **Heidi Gearhart**, George Mason University; Member, School of Historical Studies

#### October 31

Art History Seminar (evening) + *Provoking Religion: Visual Art and the U.S. Culture Wars* + **Anthony Petro**, Boston University; Member, School of Historical Studies

#### November 13

Art History Seminar + *Painting Against Time: Medicine and Astrology in a Thirteenth-Century Mural* + **Marius Hauknes**, University of Notre Dame; Member, School of Historical Studies

#### November 20

S.T. Lee Lecture + *Architecture in Two Dimensions: The Case for and Against Drawing* + **Alina Payne**, Harvard University

#### December 5

Art History Seminar + *Orientation: El Lissitzky's Evolutionary Urbanism* + **Alla Vronskaya**, Illinois Institute of Technology; Member, School of Historical Studies

#### January 23

Art History Seminar + *Second term introductions + wrap up of fall term and short presentations by new participants* + **Yve-Alain Bois**, Professor, School of Historical Studies

#### January 30

Art History Seminar + *The Bronze Door of Hildesheim (1015): Decoding Monumental Iconic Works* + **Charlotte Denoël**, Bibliothèque Nationale de France; Member, School of Historical Studies; **Isabelle Marchesin**, Institut National d'Histoire de l'Art, Paris; Visitor, School of Historical Studies

#### February 20

Art History Seminar + *Chasing Fouquet's Agnes Sorel* + **Laura Weigert**, Rutgers, the State University of New Jersey; Member, School of Historical Studies

#### February 27

Art History Seminar + *Foucault at Work* + **Molly Nesbit**, Vassar College; Member, School of Historical Studies

#### March 6

Art History Seminar + *Temporal Painting: The Calendar Cycle at Santi Quattro Coronati* + **Marius Hauknes**, University of Notre Dame; Member, School of Historical Studies

April 8

Art History Zoom Seminar + *The Talent-Meter: Designing Divided Labor* + **Alla Vronskaya**, Illinois Institute of Technology; Member, School of Historical Studies

April 22

Art History Zoom Seminar + *The "Palestrina Pietà": Gatherings on the History of a Statue Starred by Michelangelo* + **Marilyn Aronberg Lavin**

April 27

Art History Zoom Seminar + *The Christian Concept of Light and its Implication in Medieval Iconography* + **Isabelle Marchesin**, Institut National d'Histoire de l'Art, Paris; Visitor, School of Historical Studies

May 6

Art History Zoom Seminar + *El Lissitzky and the Modern Space of Axonometry* + **Yve-Alain Bois**, Professor, School of Historical Studies

May 13

Art History Zoom Seminar + *The feather and the lead. The weight of words on text-only jackets and covers, in France and the US around WW2* + **Clémence Imbert**

May 27

Art History Zoom Seminar + *The Early Work of Vija Celmins* + **Frances Jacobus-Parker**

## EARLY MODERN EUROPE ACTIVITIES

October 10

Early Modern Europe Seminar + *Indigenizing Calvinism in the Dutch Empire* + **Charles Parker**, Saint Louis University; Member, School of Historical Studies

October 28

Early Modern Europe Seminar + *No Better than a Brothel* + **Beth Plummer**, University of Arizona; Member, School of Historical Studies

November 4

Early Modern Europe Seminar + *Metallism and the Social Theory of Money in Seventeenth-Century England* + **Andrew Sartori**, New York University; Member, School of Historical Studies

November 25

Early Modern Europe Seminar + *Religious Artifacts and Slaves in the Early Modern Mediterranean* + **Daniel Hershenson**, University of Connecticut; Member, School of Historical Studies

December 2

Early Modern Europe Seminar + *Signs of History: A Historical Inquiry into the Monument as an Object of Knowledge* + **Lisa Regazzoni**, Member, School of Historical Studies

January 16

Early Modern Europe Seminar + *Man Alone Sings* + **Deirdre Loughridge**, Northeastern University; Member, School of Historical Studies

January 27

Early Modern Europe Seminar + *The Place of Sorcery in the Thought of a Seventeenth Century Moroccan Astronomer and Alchemist* + **Justin Stearns**, New York University Abu Dhabi; Member, School of Historical Studies

February 3

Early Modern Europe Seminar + *The Globalization of Calvinism and Dutch Society* + **Charles Parker**, Saint Louis University; Member, School of Historical Studies

February 13

Early Modern Europe Seminar + *"The Shipwreck of the Turks": Law of Nations, Sovereignty, and the Boundaries of Hospitality in the Eighteenth-Century Mediterranean* + **Francesca Trivellato**, Andrew W. Mellon Professor, School of Historical Studies, with **Guillaume Calafat**, Paris 1–Panthéon Sorbonne

February 20

*What is Global History? A Roundtable* + **Sebastian Conrad**, Professor of History, Free University of Berlin in conversation with **Suzanne Conklin Akbari**, Professor, School of Historical Studies; **Nicola Di Cosmo**, Luce Foundation Professor in East Asian Studies, School of Historical Studies; **Francesca Trivellato**, Andrew W. Mellon Professor, School of Historical Studies

March 5

Early Modern Europe Seminar + *The Maghreb in Spain: Slave and Muslims in Eighteenth-Century Cartagena* + **Daniel Hershenson**, University of Connecticut; Member, School of Historical Studies

March 27

Early Modern Europe Seminar + *The Enlightenment and Original Sin* + **Matt Kadane**, Hobart and William Smith Colleges; Member, School of Historical Studies

April 13

Early Modern Europe Seminar + *The Blood of Households: Private Violence and Legalities of Raiding in Early European Empires* + **Lauren Benton**, Vanderbilt University; Member, School of Historical Studies

May 15

Early Modern Europe Seminar + *Coevolution of Judicial and Reputational Institutions in Contract Enforcement across the Early Atlantic Sugar Route* + **Daniel Strum**, University of Sao Paulo; Member, School of Historical Studies

## EAST ASIAN STUDIES ACTIVITIES

October 7

East Asian Seminar + *China's Afro-Asian Philology (ca. 1955–65)* + **Tamara Chin**, Brown University; Member, School of Historical Studies

October 14

East Asian Seminar + *Rats, Cats, and Bandits in the Early Modern Canton Delta* + **Robert Antony**, Guangzhou University; Member, School of Historical Studies

October 28

East Asian Seminar + *The Climate of the Manchu Conquest* + **Nicola Di Cosmo**, Luce Foundation Professor in East Asian Studies, School of Historical Studies, Institute for Advanced Study

November 4

East Asian Seminar + *The Barbers of Beijing* + **Fabio Lanza**, University of Arizona; Member, School of Historical Studies

November 25

East Asian Seminar + *From the Ground Up: Refining Views of Japanese History (850–1550) Through Mining* + **Tom Conlan**, Princeton University

December 16

East Asian Seminar + *New China Daily: Social Change and the Class Project in Wartime Nationalist China* + **Joshua Howard**, University of Mississippi; Member, School of Historical Studies

January 20

East Asian Seminar + *Is it finished? Problems in the history of Chinese buildings, with some thoughts on 修* + **Susan Naquin**, Princeton University

February 3

East Asian Seminar + *New insights on the transition to agriculture and sedentary way of life in North China* + **Gideon Shelach-Lavi**, Hebrew University; Member, School of Historical Studies

February 17

East Asian Seminar + *Instability, crises and disintegration of the Turkic empires on the Mongolian plateau* + **Jan Bemmman**, University of Bonn; Member, School of Historical Studies

March 2

East Asian Seminar + *Beneath the China Boom: Labor, Citizenship, and the Making of a Rural Land Market* + **Julia Chuang**, Boston College; Member, School of Historical Studies

## MEDIEVAL STUDIES ACTIVITIES

### October 31

Medieval Studies Seminar + *First Term Introductions and Disciplinary Methodologies* (Nirenberg, Whitaker) + **Suzanne Conklin Akbari**, Professor, School of Historical Studies + 2019–20 series on “Race, Racialization, and Periodization” co-convened with **Cord Whitaker**, Wellesley College; Member, School of Historical Studies

### November 7

Medieval Studies Seminar + *The Politics of the History of Race and Racialization: Jewish Studies and Art History* (Lipton, Mittman) + **Suzanne Conklin Akbari**, Professor, School of Historical Studies, and **Cord Whitaker**, Wellesley College; Member, School of Historical Studies

### November 14

Medieval Studies Seminar + *The Intersection of Religion and Race: Muslim Bodies* (Akbari, Heng) + **Suzanne Conklin Akbari**, Professor, School of Historical Studies, and **Cord Whitaker**, Wellesley College; Member, School of Historical Studies

### November 19

Book History Workshop + *Formats of the Book in East Asia and Environs* + **Suzanne Conklin Akbari**, Professor, School of Historical Studies; **Nicola Di Cosmo**, Luce Foundation Professor in East Asian Studies, School of Historical Studies; **Paul Chandler Dilley**, University of Iowa; Member, School of Historical Studies; **Martin Heijdra**, Princeton University; **Stephen Teiser**, Princeton University + co-sponsored by the Andrew W. Mellon Foundation and Princeton’s Buddhist Studies Workshop

### December 5

Medieval Studies Seminar + *Ethnicity, Race, and Racialization* (Reimitz, Rouighi) + **Suzanne Conklin Akbari**, Professor, School of Historical Studies, and **Cord Whitaker**, Wellesley College; Member, School of Historical Studies

### January 23

Medieval Studies Seminar + *Critical Race and the Middle Ages* (Kim, Lopez-Jantzen) + **Suzanne Conklin Akbari**, Professor, School of Historical Studies, and **Cord Whitaker**, Wellesley College; Member, School of Historical Studies

### February 13

Medieval Studies Seminar + *Political and Racial Identities of the English and the Welsh* (Lavezzo, Lumbley) + **Celia Chazelle**, The College of New Jersey

### March 5

Medieval Studies Seminar + *Legalizing Ethnicity and Ethnogenesis* (Reimitz, Haney López) + **Helmut Reimitz**, Princeton University

### April 16

Medieval Studies Seminar + *Medieval Indigeneity* (Miyashiro, Rouighi) + **Suzanne Conklin Akbari**, Professor, School of Historical Studies

### May 14

Medieval Studies Seminar + *Usury in Pistoia and the Role of Anti-Judaism* (Fossier, Todeschini) + **Arnaud Fossier**, Université de Bourgogne; Member, School of Historical Studies

### May 7

Medieval Studies Seminar + *Slavery, the Slave Trade, and Venetian Notarial Documents* (Amitai and Cluse; Stello) + **Nicola Di Cosmo**, Luce Foundation Professor in East Asian Studies, School of Historical Studies

### May 21

Medieval Studies Seminar + *Racialization, Enslavement, and Religious Identity* (Epstein, Silleras-Fernández) + **Ariana Myers**, Princeton University

### June 4

Medieval Studies Seminar + *Ethnicity and Race in Early Medieval Book Illumination* (Denoël, Michaud) + **Charlotte Denoël**, Bibliothèque Nationale de France; Member, School of Historical Studies

### June 11

Medieval Studies Seminar + *Race, Racialization, and Periodization* (Davis, Whitaker) + **Cord Whitaker**, Wellesley College; Member, School of Historical Studies

## NEAR/MIDDLE EASTERN AND ISLAMIC STUDIES ACTIVITIES

### October 2

Near Eastern Studies Seminar + *Intersections between Arabic and Aramaic: The Case of Syriac Christians* + **Aaron Michael Butts**, The Catholic University of America; Member, School of Historical Studies

### October 17

The Historical Studies–Social Science Library Conversations + *The Syriac Orthodox in North America (1895–1995): A Short History* + **George A. Kiraz**, Beth Mardutho: The Syriac Institute; Research Associate, School of Historical Studies

### October 23

Near Eastern Studies Seminar + *The Political Subtexts of Copto-Arabic Pseudepigraphy: Stories of the First Church of Mary as Responses to Territorial Dispossession* + **Mary Kamal Farag**, Princeton Theological Seminary; Member, School of Historical Studies

### December 4

Near Eastern Studies Seminar + *The Arabia of Abraha* + **Christian Robin**, Centre National de la Recherche Scientifique, Paris; Member, School of Historical Studies

### December 11

Near Eastern Studies Seminar + *The Kidnapping of a 14th Century Rasulid Sultan: The Case of al-Malik al-Mujāhid ‘Alī* + **Daniel Martin Varisco**, American Institute for Yemeni Studies; Member, School of Historical Studies

### January 21, 23, 28, 30 and February 13

Near Eastern Studies Workshop + *Documents/Inscriptions from pre-Islamic Southern Arabia* + Led by **Christian Robin**, Centre National de la Recherche Scientifique, Paris; Member, School of Historical Studies. Sponsored by **Sabine Schmidtke**, Professor, School of Historical Studies

### January 27

*Iran at the Crossroads of Civilization: Scholars and Lawyers Speaking about Iranian History and Cultural Heritage. A Panel Discussion* + **Irina Bokova**, former Director-General of UNESCO; **Touraj Daryaei**, University of California, Irvine; **Ani Honarchiansaky**, Princeton University; **Rudi Matthee**, University of Delaware; **Matthew T. Miller**, University of Maryland, College Park; **Alexander Nagel**, State University of New York and Smithsonian Institution, Washington, DC; **Thomas G. Weiss**, The Graduate Center, City University of New York. Sponsored by **Sabine Schmidtke**, Professor, School of Historical Studies

### January 29

Near Eastern Studies Seminar + *Medicine, God, and the Occult in 17th Century Morocco* + **Justin Stearns**, New York University Abu Dhabi; Member, School of Historical Studies

### February 5

Near Eastern Studies Seminar + *Tribal Dynamics and Nation Building in Yemen* + **Najwa Adra**, Austrian Academy of Sciences; Visitor, School of Social Science

### February 12

Near Eastern Studies Seminar + *Mathematical Methods in the Soviet Historiography of Medieval Islamic Architecture* + **Igor Demchenko**, Columbia University; Visitor, School of Historical Studies

### February 19

Near Eastern Studies Seminar + *Why Yemen Matters: The Heritage of a Land in Crisis, A Panel Discussion with current IAS Scholars* + **Najwa Adra**, Austrian Academy of Sciences; Visitor, School of Social Science; **Hassan Ansari**, Long-term Member, School of Historical Studies; **Glen W. Bowersock**, Professor Emeritus, School of Historical Studies; **Nathalie Peutz**, New York University Abu Dhabi; Member, School of Social Science; **Christian Robin**, Centre National de la

Recherche Scientifique, Paris; Member, School of Historical Studies; **Sabine Schmidtke**, Professor, School of Historical Studies; **Daniel Martin Varisco**, American Institute for Yemeni Studies; Member, School of Historical Studies

## School of Mathematics

### September 10

PTS Seminar Series: Deep Learning for Physics + *Toward Theoretical Understanding of Deep Learning* + **Sanjeev Arora**, Princeton University; Distinguished Visiting Professor, School of Mathematics

### September 11

Seminar on Theoretical Machine Learning

### September 12

Joint IAS/Princeton University Number Theory Seminar + *Taking the Hecke Algebra to Its Limits* + **Raphael Steiner**, Member, School of Mathematics

### September 19

Number Theory Working Group + *Singular Moduli for Real Quadratic Fields (Organizational Meeting)* + **Jan Vonk**, Member, School of Mathematics

Joint IAS/Princeton University Number Theory Seminar + *On the Arithmetic of Elliptic Curves over Quintic Fields* + **Michele Fornea**, Princeton University

### September 24

Short talks by postdoctoral members + *A Program for Classifying Transitive Anosov Diffeomorphisms* + **Clark Butler**, Princeton University; Veblen Research Instructor, School of Mathematics + *Flatness, Smoothness, and the Analyst's Traveling Salesman Theorem* + **Silvia Ghinassi**, Member, School of Mathematics + *Geometric Applications of Derived Categories* + **Alexander Perry**, Member, School of Mathematics + *Golden Gates in  $PU(n)$  and the Density Hypothesis* + **Shai Evra**, Member, School of Mathematics + *Growth of Topological Invariants of Locally Symmetric Spaces* + **Mikolaj Fraczyk**, Member, School of Mathematics + *Interfaces in Inhomogeneous Media: Pinning, Hysteresis, and Facets* + **William Feldman**, Member, School of Mathematics + *Robustness and Strategic Concerns in Machine Learning* + **Yu Cheng**, Member, School of Mathematics

### September 25

Short talks by postdoctoral members + *Counting Curves on Quintic Threefolds* + **Felix Janda**, Member, School of Mathematics + *Exploration in Reinforcement Learning* + **Chi Jin**, Member, School of Mathematics + *Fourier Coefficients of Automorphic Forms* + **Henrik Gustafsson**, Member, School of Mathematics + *Spectral Statistics of Sparse Random Graphs* + **Jiaoyang Huang**, Member, School of Mathematics + *Stochastic Local Search and the Lovasz Local*

*Lemma* + **Fotios Iliopoulos**, Member, School of Mathematics + *The Thin Obstacle Problem* + **Yash Jhaveri**, Member, School of Mathematics

### September 26

Joint IAS/Princeton University Number Theory Seminar + *Golden Gates in  $PU(n)$  and the Density Hypothesis* + **Shai Evra**, Member, School of Mathematics

### September 27

Short talks by postdoctoral members + *Degeneration of Calabi-Yau Metrics* + **Yang Li**, Member, School of Mathematics + *Ill-Posedness of Incompressible Fluid Models* + **Hyunju Kwon**, Member, School of Mathematics + *New Forms of Hypercontractivity* + **Dor Minzer**, Member, School of Mathematics + *Pointwise Inequalities for Certain Nonlocal Operators* + **Ángel Martínez Martínez**, Member, School of Mathematics + *Systems of Points with Logarithmic Interactions* + **Thomas Leblé**, Member, School of Mathematics + *The Asymptotic Spectrum of Graphs* + **Jeroen Zuiddam**, Member, School of Mathematics + *The Homology Cobordism Group* + **Linh Truong**, Member, School of Mathematics

### October 1

IAS-PNI Seminar on ML and Neuroscience + *A Geometric Data Structure from Neuroscience* + **Sanjoy Dasgupta**, University of California, San Diego; Special Year Member, School of Mathematics

Short talks by postdoctoral members + *On the Connection between Neural Networks and Kernels: A Modern Perspective* + **Simon Du**, Member, School of Mathematics +  *$p$ -adic Hodge Theory for Local Systems* + **Koji Shimizu**, Member, School of Mathematics + *Primes in High-Dimensional Equivariant Settings* + **Rohit Nagpal**, Member, School of Mathematics + *Proof and Circuit Complexity* + **Robert Robere**, Member, School of Mathematics + *Relative Smoothness: Progress, Mysteries, and Hamiltonians* + **Christopher Maddison**, Member, School of Mathematics

### October 2

Seminar on Theoretical Machine Learning + *Rethinking Control* + **Elad Hazan**, Princeton University, Google AI Princeton

Short talks by postdoctoral members + *Discrete Optimization under Uncertainty* + **Sahil Singla**, Member, School of Mathematics + *Distributional Aspects of Hecke Eigenforms* + **Raphael Steiner**, Member, School of Mathematics + *Incidence Estimates with Application to Fourier Analysis* + **Hong Wang**, Member, School of Mathematics + *Interactive Learning with Comparison Queries* + **Shay Moran**, Google Brain; Visitor, School of Mathematics + *Life in Characteristic  $p$  (And How to Escape It)* + **Remy van Dobben de Bruyn**, Princeton University; Veblen Research Instructor, School of Mathematics + *Matrix Theory: Optimization,*

*Concentration and Algorithms* + **Zhao Song**, Member, School of Mathematics + *Singular Moduli for Real Quadratic Fields and  $p$ -adic Families of Modular Forms* + **Jan Vonk**, Member, School of Mathematics + *Towards Building a Foundation of Deep Learning* + **Jason Lee**, Member, School of Mathematics

### October 3

Joint IAS/Princeton University Number Theory Seminar + *A Stacky Approach to Crystalline (and Prismatic) Cohomology* + **Vladimir Drinfeld**, The University of Chicago; Visiting Professor, School of Mathematics

Working Seminar in Algebraic Number Theory

### October 4

Short talks by postdoctoral members + *A Short Talk around the Harish-Chandra Transform* + **Alexander Yom Din**, Member, School of Mathematics + *Decay of Correlations for Anosov Flows* + **Zhiyuan Zhang**, Member, School of Mathematics + *Dynamics of Deep Neural Networks—A Fourier Analysis Perspective* + **Yaoyu Zhang**, Member, School of Mathematics + *Estimating the Wasserstein Metric* + **Jonathan Niles-Weed**, Member, School of Mathematics + *Robustness of Graph Properties—Property Testing and Removal Lemma* + **Fan Wei**, Member, School of Mathematics + *Uniqueness Aspects of Symplectic Fillings* + **Zhengyi Zhou**, Member, School of Mathematics

### October 7

Members' Seminar + *Logarithmic Concavity of Schur Polynomials* + **June Huh**, Visiting Professor, School of Mathematics

Analysis Seminar + *Weak Solutions of the Navier-Stokes Equations May Be Smooth for A.E. Time* + **Maria Colombo**, École Polytechnique Fédérale de Lausanne; von Neumann Fellow, School of Mathematics

Symplectic Dynamics/Geometry Seminar + *Bourgeois Contact Structures: Tightness, Fillability and Applications* + **Agustin Moreno**, University of Augsburg

### October 8

Seminar on Theoretical Machine Learning + *Unsupervised Ensemble Learning* + **Boaz Nadler**, Weizmann Institute of Science; Member, School of Mathematics

### October 9

Seminar on Theoretical Machine Learning + *Designing Fast and Robust Learning Algorithms* + **Yu Cheng**, University of Illinois at Chicago

Mathematical Conversations + *Finite Fields and the Ax-Grothendieck Theorem* + **Remy van Dobben de Bruyn**, Princeton University; Veblen Research Instructor, School of Mathematics

## October 10

Joint IAS/Princeton University Number Theory Seminar + *Extremal Cases of Rapoport-Zink Spaces* + **Michael Rapoport**, Universität Bonn, University of Maryland

Working Seminar on Nonabelian Hodge Theory

Working Seminar in Algebraic Number Theory

## October 11

Analysis - Mathematical Physics + *Nodal Domains of Equivariant Eigenfunctions on Kaluza-Klein 3-Folds* + **Junehyuk Jung**, Texas A&M University + *On a Universal Limit Conjecture for the Nodal Count Statistics of Quantum Graphs* + **Lior Alon**, Technion

Special Dynamics Seminar + *On Radon Measures Invariant under Horospherical Flows on Geometrically Infinite Manifolds* + **Or Landesberg**, The Hebrew University of Jerusalem

## October 14

Members' Seminar + *Finding Structure in High Dimensional Data, Methods and Fundamental Limitations* + **Boaz Nadler**, Weizmann Institute of Science; Member, School of Mathematics

Analysis Seminar + *On the (In)Stability of the Identity Map in Optimal Transportation* + **Yash Jhaveri**, Member, School of Mathematics

Symplectic Dynamics/Geometry Seminar + *Inscribing Rectangles in Jordan Loops* + **Richard Schwartz**, Brown University

## October 15

Workshop on Theory of Deep Learning: Where next? + *Are All Features Created Equal?* + **Aleksander Madry**, Google + *Emergent Linguistic Structure in Deep Contextual Neural Word Representations* + **Chris Manning**, Stanford University + *Fixing GAN Optimization through Competitive Gradient Descent* + **Anima Anandkumar**, California Institute of Technology + *Is Optimization the Right Language to Understand Deep Learning?* + **Sanjeev Arora**, Princeton University; Distinguished Visiting Professor, School of Mathematics + *Overcoming the Curse of Dimensionality and Mode Collapse* + **Ke Li**, University of California, Berkeley + *PAC-Bayesian Approaches to Understanding Generalization in Deep Learning* + **Karolina Dziugaite Roy**, Simons Institute for the Theory of Computing + *Spotlight Talks* + Various + *Spotlight Talks* + Various + *Tightening Information-Theoretic Generalization Bounds with Data-Dependent Estimates with an Application to SGLD* + **Daniel M. Roy**, University of Toronto + *What 2-Layer Neural Nets Can We Optimize?* + **Rong Ge**, Duke University; Member, School of Mathematics

## October 16

Mathematical Conversations + *What Is Percolation?* + **Stanislav Smirnov**, University of Geneva; Visitor, School of Mathematics

Workshop on Theory of Deep Learning: Where next? + *Energy-Based Approaches to Representation Learning* + **Yann LeCun**, New York University and Facebook AI + *From Classical Statistics to Modern ML: The Lessons of Deep Learning* + **Mikhail Belkin**, Ohio State University + *Neural Models for Speech and Language: Successes, Challenges, and the Relationship to Computational Models of the Brain* + **Michael Collins**, Columbia University + *On Large Deviation Principles for Large Neural Networks* + **Joan Bruna**, New York University + *On the Connection between Neural Networks and Kernels: A Modern Perspective* + **Simon Du**, Member, School of Mathematics + *Panel Session* + Various + *Spotlight Talks* + Various + *Towards a Theoretical Foundation of Neural Networks* + **Jason Lee**, Princeton University; Member, School of Mathematics

## October 17

Joint IAS/Princeton University Number Theory Seminar + *Geometric Lifts of Odd Galois Representations* + **Stefan Patrikis**, University of Utah

Working Seminar on Nonabelian Hodge Theory

Working Seminar in Algebraic Number Theory

Workshop on Theory of Deep Learning: Where next? + *Designing Explicit Regularizers for Deep Models* + **Tengyu Ma**, Stanford University + *Interpreting Deep Neural Networks* + **Bin Yu**, University of California, Berkeley + *Kernel and Rich Regimes in Deep Learning* + **Nati Srebro**, Toyota Technological Institute at Chicago + *Learning Representations Using Causal Invariance* + **Leon Bottou**, Facebook AI Research + *Poster Session* + Various + *Provably Efficient Reinforcement Learning with Linear Function Approximation* + **Chi Jin**, Member, School of Mathematics + *Spotlight Talks* + Various + *Spotlight Talks* + Various + *Understanding the Inductive Bias Due to Dropout* + **Raman Arora**, Johns Hopkins University; Member, School of Mathematics

## October 18

Workshop on Theory of Deep Learning: Where next? + *Are All Features Created Equal* + **Behnam Neyshabur**, Google + *Concentration Inequalities for Random Matrix Products* + **Rachel Ward**, The University of Texas at Austin; von Neumann Fellow, School of Mathematics + *Informal Discussion Sessions* + *Machine Learning* + **Surya Ganguli**, Stanford University + *Reinforcement Learning, Deep Learning, and the Role of Policy Gradient Methods* + **Sham Kakade**, University of Washington + *Representational Power of Graph Neural Networks* + Stefanie Jegelka, Massachusetts Institute of Technology + *Spotlight Talks* + Various + *Spotlight Talks* + **Zhiyuan Li**, **John Zarka**, **Stanislaw Fort**, Princeton University, l'Ecole normale supérieure, Stanford University

## October 21

Members' Seminar + *Length and Volume in Symplectic Geometry* + **Daniel Cristofaro-Gardiner**, University of California, Santa Cruz; von Neumann Fellow, School of Mathematics

Analysis Seminar + *Strong Ill-Posedness of the Logarithmically Regularized 2d Euler Equations in the Borderline Sobolev Space* + **Hyunju Kwon**, Member, School of Mathematics

Symplectic Dynamics/Geometry Seminar + *Koszul Duality and Knot Floer Homology* + **Thomas Hockenhull**, University of Glasgow

## October 22

PCTS Seminar Series: Deep Learning for Physics + *Autoregressive Simulation of Many-Body Quantum Systems* + **Or Sharir**, Hebrew University of Jerusalem + *Machine Learning Techniques for Many-Body Quantum Systems* + **Giuseppe Carleo**, Simons Foundation

## October 23

Seminar on Theoretical Machine Learning + *Optimization Landscape and Two-Layer Neural Networks* + **Rong Ge**, Duke University; Member, School of Mathematics

Mathematical Conversations + *Khovanov Homology* + **Linh Truong**, Member, School of Mathematics

## October 24

Joint IAS/Princeton University Number Theory Seminar + *A Slice or Two of a Diagonal Cubic: Arithmetic Stratification via the Circle Method* + **Trevor Wooley**, Purdue University

Working Seminar on Nonabelian Hodge Theory + *Epsilon Regularity and Removable Singularities* + **Karen Uhlenbeck**, The University of Texas at Austin; Distinguished Visiting Professor, School of Mathematics

Working Seminar in Algebraic Number Theory

## October 28

Members' Seminar + *Sparse Matrices in Sparse Analysis* + **Anna Gilbert**, University of Michigan; Member, School of Mathematics

Analysis Seminar + *The Surface Quasigeostrophic Equation on the Sphere* + **Angel Martinez Martinez**, Member, School of Mathematics

Symplectic Dynamics/Geometry Seminar + *Spectrum and Abnormals in Sub-Riemannian Geometry: The 4D Quasi-Contact Case* + **Nikhil Savale**, University of Cologne

## October 30

Mathematical Conversations + *Optimal Transport and Its Unexpected Appearances* + **Maria Colombo**, École Polytechnique Fédérale de Lausanne; von Neumann Fellow, School of Mathematics

## October 31

Working Seminar on Nonabelian Hodge Theory

Working Seminar in Algebraic Number Theory

Joint IAS/Princeton University Number Theory Seminar

## November 1

Analysis - Mathematical Physics + *Epsilon-Regularity for Minimal Surfaces near Quadratic Cones* + **Luca Spolaor**, University of California, San Diego + *Local Bound on the Number of Nodal Domains* + **Aleksandr Logunov**, Princeton University

## November 4

Members' Seminar + *Pseudoholomorphic Curves with Boundary: Can You Count Them? Can You Really?* + **Sara Tukachinsky**, Member, School of Mathematics

Analysis Seminar + *The Forced Mean Curvature Flow in Random Media* + **William Feldman**, Member, School of Mathematics

Symplectic Dynamics/Geometry Seminar + *Homological Mirror Symmetry for a Complex Genus 2 Curve* + **Catherine Cannizzo**, Simons Center for Geometry and Physics, Stony Brook

## November 5

Seminar on Theoretical Machine Learning + *On Implicit Regularization and Autotuning of Normalization in Deep Learning* + **Rachel Ward**, The University of Texas at Austin; von Neumann Fellow, School of Mathematics

## November 7

Workshop on New Directions in Reinforcement Learning and Control + *Curiosity, Unobserved Rewards and Neural Networks: On Recent Progress in Building Solid Foundations for RL* + **Csaba Szepesvari**, DeepMind, University of Alberta + *Lightning Talks* + **Galen Cho**, Microsoft Research; **Christina Yu**, Cornell University; **Cyril Zhang**, Princeton University; **Laura Balzano**, University of Michigan, Ann Arbor; Member, School of Mathematics; **Max Simchovitz**, University of California, Berkeley + *Robust Control with Perception in the Loop: Towards Open-World Manipulation* + **Russ Tedrake**, Massachusetts Institute of Technology, Toyota Research Institute + *The Non-Stochastic Control Problem* + **Elad Hazan**, Princeton University, Google AI + *Towards Structural Risk Minimization for RL* + **Emma Brunskill**, Stanford University + *Understanding Deep Networks and Its Role Played in Prioritized Search* + **Yuandong Tian**, Facebook AI + *Unsupervised State Embedding and Aggregation towards Scalable Reinforcement Learning* + **Mengdi Wang**, Princeton University

Working Seminar on Nonabelian Hodge Theory

Working Seminar in Algebraic Number Theory

Joint IAS/Princeton University Number Theory Seminar + *The Weyl Bound for Dirichlet L-Functions* + **Matthew Young**, Texas A&M; von Neumann Fellow, School of Mathematics

## November 8

Workshop on New Directions in Reinforcement Learning and Control + *Deep Reinforcement Learning in the Real World* + **Sergey Levine**, University of Berkeley + *Is a Good Representation Sufficient for Sample Efficient Reinforcement Learning* + **Sham Kakade**, University of Washington + *Lightning Talks* + **Chi Jin**, Member, School of Mathematics; **Lin Yang**, University of California, Los Angeles; **Alec Koppel**, U.S. Army Research Laboratory in the Computational and Information Sciences Directorate; **Karan Singh**, Princeton University; **Nataly Brukhim**, Princeton University + *Risk and Robustness in RL: Nothing Ventured, Nothing Gained* + **Shie Mannor**, Technion + *Strategic Exploration via State Abstraction from Rich Observations* + **John Langford**, Microsoft

## November 11

Members' Seminar + *Lie Algebras and Homotopy Theory* + **Jacob Lurie**, Professor, School of Mathematics

Analysis Seminar + *An Application of Displacement Convexity at the Level of Point Processes* + **Thomas Leblé**, Member, School of Mathematics

Symplectic Dynamics/Geometry Seminar + *Local Rigidity and  $C^0$  Symplectic and Contact Topology* + **Mike Usher**, University of Georgia

## November 12

Seminar on Theoretical Machine Learning + *Fast IRLS Algorithms for  $p$ -Norm Regression* + **Sushant Sachdeva**, University of Toronto; Member, School of Mathematics

## November 13

Seminar on Theoretical Machine Learning + *Some Statistical Results on Deep Learning: Interpolation, Optimality and Sparsity* + **Guang Cheng**, Purdue University; Member, School of Mathematics

Mathematical Conversations + *Erdős Distinct Distances Problem on the Plane* + **Hong Wang**, Member, School of Mathematics

## November 14

Working Seminar on Nonabelian Hodge Theory

Working Seminar in Algebraic Number Theory

Joint IAS/Princeton University Number Theory Seminar + *Local Systems over Shimura Varieties: A Comparison of Two Constructions* + **Kai-Wen Lan**, University of Minnesota

## November 15

Joint IAS/Princeton University Theoretical Machine Learning Seminar + *Can Learning Theory Resist Deep Learning?* + **Francis Bach**, Institut national de recherche en informatique et en automatique

Analysis - Mathematical Physics + *Extreme Eigenvalue Distributions of Sparse Random Graphs* + **Jiaoyang Huang**, Member, School of Mathematics + *Unitary, Symplectic, and Orthogonal Moments of Moments* + **Emma Bailey**, University of Bristol

Special Dynamics Seminar + *Effective Bounds for the Least Solutions of Homogeneous Quadratic Diophantine Inequalities* + **Thomas Hille**, Yale University

## November 18

Analysis Seminar + *The Singular Set in the Fully Nonlinear Obstacle Problem* + **Ovidiu Savin**, Columbia University

Symplectic Dynamics/Geometry Seminar + *Twisted Generating Functions and the Nearby Lagrangian Conjecture* + **Sylvain Courte**, Grenoble Alpes University

Hermann Weyl Lectures + *The PCP Theorem* + **Irit Dinur**, Weizmann Institute of Science; Visiting Professor, School of Mathematics

## November 19

Hermann Weyl Lectures + *High Dimensional Expansion and Error Correcting Codes* + **Irit Dinur**, Weizmann Institute of Science; Visiting Professor, School of Mathematics

PCTS Seminar Series: Deep Learning for Physics + *Deep Learning and String Theory* + **James Halverson**, Northeastern University + *Flows three ways* + **Kyle Cranmer**, New York University

## November 20

Seminar on Theoretical Machine Learning + *Nonconvex Minimax Optimization* + **Chi Jin**, Princeton University; Member, School of Mathematics

Mathematical Conversations + *Some Challenging Graph Inequality* + **Fan Wei**, Member, School of Mathematics

Hermann Weyl Lectures + *Unique and 2:2 Games, Grassmannians, and Expansion* + **Irit Dinur**, Weizmann Institute of Science; Visiting Professor, School of Mathematics

## November 21

Joint IAS/Princeton University Number Theory Seminar + *Canonical Integral Models of Shimura Varieties* + **George Pappas**, Member, School of Mathematics

Working Seminar on Nonabelian Hodge Theory

Working Seminar in Algebraic Number Theory

### November 22

Special Dynamics Seminar + *On Some Consequences of Exponential Mixing* + **Federico Rodriguez-Hertz**, Penn State University

### November 25

Joint IAS/Princeton University Number Theory Seminar + *On Singularity Properties of Word Maps and Applications to Probabilistic Waring Type Problems* + **Itay Glazer**, Weizmann Institute of Science

Special Seminar + *Topological Quantum Phases* + **Alexei Kitaev**, California Institute of Technology; Distinguished Visiting Professor, School of Natural Sciences

Members' Seminar + *Convergence of nearest Neighbor Classification* + **Sanjoy Dasgupta**, University of California, San Diego; Member, School of Mathematics

Symplectic Dynamics/Geometry Seminar + *Homological Mirror Symmetry for Elliptic Hopf Surfaces* + **Abigail Ward**, Harvard University

### November 26

Seminar on Theoretical Machine Learning + *A Fourier Analysis Perspective of Training Dynamics of Deep Neural Networks* + **Yaoyu Zhang**, Member, School of Mathematics

### December 2

Members' Seminar + *Mathematical Models of Human Memory* + **Michail Tsodyks**, C.V. Starr Professor, School of Natural Sciences

Analysis Seminar + *Distance Estimate on Kähler Manifolds* + **Yang Li**, Member, School of Mathematics

Symplectic Dynamics/Geometry Seminar + *Disjoint Lagrangian Spheres and Cyclic Dilations* + **Yin Li**, King's College London

### December 3

IAS-PNI Seminar on ML and Neuroscience + *A Distributional Code for Value in Dopamine-Based Reinforcement Learning* + **Matthew Botvinick**, DeepMind

Joint IAS/Princeton University Number Theory Seminar + *Thin Groups and the Arithmetic of Imaginary Quadratic Fields* + **Katherine Stange**, University of Colorado, Boulder

### December 4

Seminar on Theoretical Machine Learning + *Uncoupled Isotonic Regression* + **Jonathan Niles-Weed**, New York University; Member, School of Mathematics

Mathematical Conversations + *Episodic Memory from First Principles* + **Michelangelo Naim**, Weizmann Institute of Science; Visitor, School of Natural Sciences

### December 5

Joint IAS/Princeton University Number Theory Seminar + *Higher Order Uniformity of the Möbius Function* + **Joni Teräväinen**, University of Oxford

Special Seminar on Hilbert's 13th Problem I + *The Geometry of Hilbert's 13th Problem* + **Jesse Wolfson**, University of California, Irvine

Working Seminar on Nonabelian Hodge Theory

Working Seminar in Algebraic Number Theory

### December 6

Analysis - Mathematical Physics + *Cardy Embedding of Random Planar Maps* + **Nina Holden**, ETH Zürich + *The Nonlinear Stability of the Schwarzschild Metric without Symmetry* + **Mihalis Dafermos**, Princeton University

Special Seminar on Hilbert's 13th Problem II + *Topology of Resolvent Problems* + **Benson Farb**, University of Chicago

### December 9

Members' Seminar + *The h-Principle in Symplectic Geometry* + **Emmy Murphy**, Northwestern University; von Neumann Fellow, School of Mathematics

Analysis Seminar + *On the Gradient-Flow Structure of Multiphase Mean Curvature Flow* + **Tim Laux**, University of California, Berkeley

Symplectic Dynamics/Geometry Seminar + *Convex Hypersurface Theory in Higher-Dimensional Contact Topology* + **Ko Honda**, University of California, Los Angeles

### December 11

Mathematical Conversations + *Cohomology Theories and Formal Groups* + **Jacob Lurie**, Professor, School of Mathematics

### December 12

Joint IAS/Princeton University Number Theory Seminar + *The Arithmetic Fundamental Lemma for Unitary Groups: An Update* + **Wei Zhang**, Massachusetts Institute of Technology

Working Seminar on Nonabelian Hodge Theory

Working Seminar in Algebraic Number Theory

### December 13

Analysis - Mathematical Physics + *A Rigorous Derivation of the Kinetic Wave Equation* + **Tristan Buckmaster**, Princeton University + *Localization and Unique Continuation on the Integer Lattice* + **Charles Smart**, University of Chicago

### December 17

Seminar on Theoretical Machine Learning + *How Will We Do Mathematics in 2030?* + **Michael R. Douglas**, Simons Center for Geometry and Physics, Stony Brook

### December 18

Seminar on Theoretical Machine Learning + *Online Learning in Reactive Environments* + **Raman Arora**, Johns Hopkins University; Member, School of Mathematics

Mathematical Conversations + *Faster and Simpler Algorithms for Robust Statistics* + **Yu Cheng**, University of Illinois at Chicago; Visitor, School of Mathematics

### December 19

Working Seminar on Nonabelian Hodge Theory

### January 13

Analysis Seminar + *Weak Solutions to the Navier-Stokes Inequality with Arbitrary Energy Profiles* + **Wojciech Ożański**, University of Southern California; Member, School of Mathematics

### January 14

IAS-PNI Seminar on ML and Neuroscience + *Compositional Inductive Biases in Human Function Learning* + **Samuel J. Gershman**, Harvard University

### January 15

Mathematical Conversations + *Hypoocoercivity* + **George Deligiannidis**, University of Oxford

### January 16

Seminar on Theoretical Machine Learning + *Foundations of Intelligent Systems with (Deep) Function Approximators* + **Simon Du**, Member, School of Mathematics

Working Seminar on Nonabelian Hodge Theory

### January 17

Analysis - Mathematical Physics + *Inverse Problems for Quantum Graphs* + **Pavel Kurasov**, Stockholm University

### January 21

Seminar on Theoretical Machine Learning + *The Blessings of Multiple Causes* + **David M. Blei**, Columbia University

Computer Science/Discrete Mathematics Seminar II + *Approximating CSPs on Expanding Structures, and Applications to Codes* + **Madhur Tulsiani**, Toyota Technological Institute at Chicago

### January 22

Mathematical Conversations + *What Is a Motive?* + **Pierre Deligne**, Professor Emeritus, School of Mathematics

### January 23

Joint IAS/Princeton University Number Theory Seminar + *Motivic Euler Products in Motivic Statistics* + **Margaret Bilu**, New York University

Seminar on Theoretical Machine Learning + *In Defense of Uniform Convergence: Generalization via Derandomization* + **Daniel M. Roy**, University of Toronto; Member, School of Mathematics

Working Seminar on Nonabelian Hodge Theory

### January 27

Computer Science/Discrete Mathematics Seminar I + *Equality Alone Does Not Simulate Randomness* + **Marc Vinyals**, Technion

Members' Seminar + *Knotted 3-Balls in the 4-Sphere* + **David Gabai**, Princeton University

Symplectic Dynamics/Geometry Seminar + *Symplectic Embeddings, Integrable Systems and Billiards* + **Vinicius Ramos**, Instituto Nacional de Matemática Pura e Aplicada

### January 28

Seminar on Theoretical Machine Learning + *What Noisy Convex Quadratics Tell Us about Neural Net Training* + **Roger Grosse**, University of Toronto; Member, School of Mathematics

Computer Science/Discrete Mathematics Seminar II + *Pseudo-Deterministic Algorithms* + **Toniann Pitassi**, University of Toronto; Visiting Professor, School of Mathematics

### January 30

Joint IAS/Princeton University Number Theory Seminar + *Eisenstein Series and the Cubic Moment for PGL(2)* + **Paul Nelson**, ETH Zürich

Working Seminar on Nonabelian Hodge Theory

### February 3

Computer Science/Discrete Mathematics Seminar I + *MIP\* = RE* + **Henry Yuen**, University of Toronto

Members' Seminar + *Coarse Dynamics and Partially Hyperbolic Diffeomorphisms in 3-Manifolds* + **Rafael Potrie**, Universidad de la República, Uruguay; von Neumann Fellow, School of Mathematics

Analysis Seminar + *When Do Interacting Organisms Gravitate to the Vertices of a Regular Simplex?* + **Robert McCann**, University of Toronto

Symplectic Dynamics/Geometry Seminar + *Counting Embedded Curves in Symplectic 6-Manifolds* + **Aleksander Doan**, Columbia University

### February 4

Seminar on Theoretical Machine Learning + *Algorithm and Hardness for Kernel Matrices in Numerical Linear Algebra and Machine Learning* + **Zhao Song**, Member, School of Mathematics

Computer Science/Discrete Mathematics Seminar II + *Proofs, Circuits, Communication, and Lower Bounds in Complexity Theory* + **Robert Robere**, Member, School of Mathematics

### February 5

Mathematical Conversations + *Anosov Flows in 3-Manifolds and the Fundamental Group* + **Rafael Potrie**, Universidad de la República, Uruguay; von Neumann Fellow, School of Mathematics

### February 6

Seminar on Theoretical Machine Learning - PCTS Seminar Series: Deep Learning for Physics + *Dynamics of Generalization in Overparameterized Neural Networks* + **Andrew Saxe**, University of Oxford + *Understanding Machine Learning via Exactly Solvable Statistical Physics Models* + **Lenka Zdeborova**, Centre national de la recherche scientifique

Computer Science/Discrete Mathematics - Special Seminar + *Explicit Rigid Matrices in  $P^{NP}$  via Rectangular PCPs* + **Prahladh Harsha**, Tata Institute of Fundamental Research

Joint IAS/Princeton University Number Theory Seminar + *Supersingular Main Conjectures, Sylvester's Conjecture and Goldfeld's Conjecture* + **Daniel Kriz**, Massachusetts Institute of Technology

Working Seminar on Nonabelian Hodge Theory

### February 10

Computer Science/Discrete Mathematics Seminar I + *Paths and Cycles in Expanders* + **Michael Krivelevich**, Tel Aviv University

Members' Seminar + *Spectra of Metric Graphs and Crystalline Measures* + **Peter Sarnak**, Professor, School of Mathematics

Analysis Seminar + *On Dynamical Spectral Rigidity and Determination* + **Jacopo De Simoi**, University of Toronto

Symplectic Dynamics/Geometry Seminar + *Floer Homotopy without Spectra* + **Mohammed Abouzaid**, Columbia University

### February 11

Seminar on Theoretical Machine Learning + *Geometric Insights into the Convergence of Non-Linear TD Learning* + **Joan Bruna**, New York University; Member, School of Mathematics

Computer Science/Discrete Mathematics Seminar II + *Proofs, Circuits, Communication, and Lower Bounds in Complexity Theory* + **Robert Robere**, Member, School of Mathematics

### February 12

Mathematical Conversations + *p-adic Numbers in Cryptography and Rocky Horror* + **Mark Goresky**, Visitor, School of Mathematics

### February 13

Joint IAS/Princeton University Number Theory Seminar + *Moduli Spaces of Shtukas over Function Fields* + **Jared Weinstein**, Boston University

Seminar on Theoretical Machine Learning + *The Lottery Ticket Hypothesis: On Sparse, Trainable Neural Networks* + **Jonathan Frankle**, Massachusetts Institute of Technology

Working Seminar on Nonabelian Hodge Theory

### February 14

Analysis - Mathematical Physics + *Regularity of the Free Boundary for the Two-Phase Bernoulli Problem* + **Guido De Philippis**, New York University + *Stable Shock Formation for the Compressible Euler Equations* + **Vlad Vicol**, New York University

### February 18

IAS-PNI Seminar on ML and Neuroscience + *Compositional Generalization in Minds and Machines* + **Brenden Lake**, New York University

Computer Science/Discrete Mathematics Seminar II + *An Invitation to Invariant Theory* + **Viswambhara Makam**, Member, School of Mathematics

### February 19

Mathematical Conversations + *Regularization Effect of Gradient Flow Dynamics* + **Yaoyu Zhang**, Member, Institute for Advanced Study

### February 20

Joint IAS/Princeton University Number Theory Seminar + *Isolation of  $L^2$  Spectrum and Application to Gan-Gross-Prasad Conjecture* + **Yifeng Liu**, Yale University

Seminar on Theoretical Machine Learning + *Geometric Deep Learning for Functional Protein Design* + **Michael Bronstein**, Imperial College London

Working Seminar on Nonabelian Hodge Theory

### February 24

Computer Science/Discrete Mathematics Seminar I + *Strong Average-Case Circuit Lower Bounds from Non-Trivial Derandomization* + **Lijie Chen**, Massachusetts Institute of Technology

Members' Seminar + *Direct and Dual Information Bottleneck Frameworks for Deep Learning* + **Naftali Tishby**, The Hebrew University of Jerusalem

Analysis Seminar + “Observable Events” and “Typical Trajectories” in Finite and Infinite Dimensional Dynamical Systems + **Lai-Sang Young**, New York University; Distinguished Visiting Professor, School of Mathematics and Natural Sciences

Symplectic Dynamics/Geometry Seminar + Classification of  $N$ -Component Links with Khovanov Homology of Rank  $2^N$  + **Boyu Zhang**, Princeton University

### February 25

Seminar on Theoretical Machine Learning + Learning from Multiple Biased Sources + **Clayton Scott**, University of Michigan

Computer Science/Discrete Mathematics Seminar II + Is the Variety of Singular Tuples of Matrices a Null Cone? + **Viswambhara Makam**, Member, School of Mathematics

### February 26

Mathematical Conversations + Euler Flow with Odd Symmetry + **Hyunju Kwon**, Member, School of Mathematics

### February 27

Joint IAS/Princeton University Number Theory Seminar + A  $p$ -adic Monodromy Theorem for De Rham Local Systems + **Koji Shimizu**, Member, School of Mathematics

Seminar on Theoretical Machine Learning + Preference Modeling with Context-Dependent Salient Features + **Laura Balzano**, University of Michigan; Member, School of Mathematics

Working Seminar on Nonabelian Hodge Theory

Computer Science/Discrete Mathematics Seminar II + Spectral Independence in High-Dimensional Expanders and Applications to the Hardcore Model + **Kuikui Liu**, University of Washington

### February 28

Analysis - Mathematical Physics + Dimerization and Néel Order in Different Quantum Spin Chains through a Shared (Classical) Loop Representation + **Michael Aizenman**, Princeton University + **Svitlana Mayboroda**, University of Minnesota

### March 2

Computer Science/Discrete Mathematics Seminar I + An Improved Cutting Plane Method for Convex Optimization, Convex-Concave Games and Its Applications + **Zhao Song**, Member, School of Mathematics

Members' Seminar + Lower Bounds in Complexity Theory, Communication Complexity, and Sunflowers + **Toniann Pitassi**, University of Toronto; Visiting Professor, School of Mathematics

Analysis Seminar + Constancy of the Dimension for Non-Smooth Spaces with Ricci Curvature Bounded below via Regularity of Lagrangian Flows + **Elia Bruè**, Scuola Normale Superiore di Pisa

Symplectic Dynamics/Geometry Seminar + Twisted Calabi-Yau Algebras and Categories + **Inbar Klang**, Columbia University

### March 3

Seminar on Theoretical Machine Learning + What Noisy Convex Quadratics Tell Us about Neural Net Training + **Roger Grosse**, University of Toronto; Member, School of Mathematics

Computer Science/Discrete Mathematics Seminar II + An Introduction to Boolean Function Analysis + **Dor Minzer**, Member, School of Mathematics

### March 4

Mathematical Conversations + Rationality of Algebraic Varieties + **Alexander Perry**, Member, School of Mathematics

Workshop on Machine Learning, Theory and Method in the Social Sciences

### March 5

Joint IAS/Princeton University Number Theory Seminar + Euler System, Eisenstein Congruences and the  $p$ -adic Langlands Correspondence + **Eric Urban**, Columbia University

Seminar on Theoretical Machine Learning + Understanding Deep Neural Networks: From Generalization to Interpretability + **Gitta Kutyniok**, Technische Universität Berlin

Working Seminar on Nonabelian Hodge Theory

Workshop on Machine Learning, Theory and Method in the Social Sciences

Workshop on Machine Learning, Theory and Method in the Social Sciences/Alternate

### March 9

Computer Science/Discrete Mathematics Seminar I + Learning from Censored and Dependent Data + **Constantinos Daskalakis**, Massachusetts Institute of Technology; Member, School of Mathematics

Members' Seminar + Towards a Mathematical Model of the Brain + **Lai-Sang Young**, New York University; Distinguished Visiting Professor, School of Mathematics and Natural Sciences

Analysis Seminar + Higher Order Rectifiability and Reifenberg Parametrizations + **Silvia Ghinassi**, Member, School of Mathematics

Symplectic Dynamics/Geometry Seminar + Packing and Squeezing Lagrangian Tori + **Richard Hind**, University of Notre Dame

### March 10

Seminar on Theoretical Machine Learning + Your Brain on Energy-Based Models: Applying and Scaling EBMs to Problems of Interest to the Machine Learning Community Today + **Will Grathwohl**, University of Toronto

Computer Science/Discrete Mathematics Seminar II + Introduction to High Dimensional Expanders + **Irit Dinur**, Weizmann Institute of Science; Visiting Professor, School of Mathematics

### March 11

Seminar on Theoretical Machine Learning + Improved Bounds on Minimax Regret under Logarithmic Loss via Self-Concordance + **Blair Bilodaeu**, University of Toronto

### March 12

Joint IAS/Princeton University Number Theory Seminar + An Explicit Realization of Stable  $L$ -Packets on (Split) Classical Groups + **David Soudry**, Tel Aviv University

Working Seminar on Nonabelian Hodge Theory

### March 16

Computer Science/Discrete Mathematics Seminar I + Feature Purification: How Adversarial Training Can Perform Robust Deep Learning + **Yuanzhi Li**, Carnegie Mellon University

### March 17

Computer Science/Discrete Mathematics Seminar II + Sharp Thresholds and Extremal Combinatorics + **Dor Minzer**, Member, Institute for Advanced Study

### March 19

Working Seminar on Nonabelian Hodge Theory

### March 23

Computer Science/Discrete Mathematics Seminar I + Optimal Tiling the Euclidean Space Using Symmetric Bodies + **Mark Braverman**, Princeton University

### March 24

Computer Science/Discrete Mathematics Seminar II + High Dimensional Expansion and Agreement Testing + **Irit Dinur**, Weizmann Institute of Science; Visiting Professor, School of Mathematics

### March 26

Joint IAS/Princeton University Number Theory Seminar + Wiles Defect for Hecke Algebras That Are Not Complete Intersections + **Chandrashekar Khare**, University of California

Seminar on Theoretical Machine Learning + *Margins, Perceptrons, and Deep Networks* + **Matus Telgarsky**, University of Illinois

### March 27

Symplectic Seminar + *Fragmentation Pseudo-Metrics and Lagrangian Submanifolds* + **Octav Cornea**, Université de Montréal

### March 30

Computer Science/Discrete Mathematics Seminar I + *CSPs with Global Modular Constraints: Algorithms and Hardness via Polynomial Representations* + **Sivakanth Gopi**, Microsoft Research

### March 31

Seminar on Theoretical Machine Learning + *Some Recent Insights on Transfer Learning* + **Samory Kpotufe**, Columbia University; Member, School of Mathematics

Computer Science/Discrete Mathematics Seminar II + *High Dimensional Expansion and Agreement Testing* + **Irit Dinur**, Weizmann Institute of Science; Visiting Professor, School of Mathematics

Number Theory Working Group + *p-adic Modular Forms* + **Koji Shimizu**, Member, School of Mathematics

### April 2

Joint IAS/Princeton University Number Theory Seminar + *Density Conjecture for Horizontal Families of Lattices in  $SL(2)$*  + **Mikolaj Fraczyk**, Member, School of Mathematics

Seminar on Theoretical Machine Learning + *Learning Controllable Representations* + **Richard Zemel**, University of Toronto; Member, School of Mathematics

### April 3

Symplectic Seminar + *The Simplicity Conjecture* + **Daniel Cristofaro-Gardiner**, Member, School of Mathematics

### April 6

Computer Science/Discrete Mathematics Seminar I + *Borrowing Memory That's Being Used: Catalytic Approaches to the Tree Evaluation Problem* + **James Cook**, University of Toronto

Members' Seminar + *The Palais-Smale Theorem and the Solution of Hilbert's 23 Problem* + **Karen Uhlenbeck**, The University of Texas at Austin; Distinguished Visiting Professor, School of Mathematics

### April 7

Seminar on Theoretical Machine Learning + *Interpolation in Learning: Steps towards Understanding When Overparameterization Is Harmless, When It Helps, and When It Causes Harm* + **Anant Sahai**, University of California, Berkeley

Computer Science/Discrete Mathematics Seminar II + *Primality Testing* + **Andrey Kupavskii**, Member, School of Mathematics

Number Theory Working Group + *Some Spectral Questions over  $\mathbb{R}$  and  $\mathbb{Q}^p$*  + **Jan Vonk**, Member, School of Mathematics

### April 9

Joint IAS/Princeton University Number Theory Seminar + *On the Kudla-Rapoport Conjecture* + **Chao Li**, Columbia University

Seminar on Theoretical Machine Learning + *Meta-Learning: Why It's Hard and What We Can Do* + **Ke Li**, Member, School of Mathematics

Mathematical Conversations + *Consequences of Delays and Imperfect Isolation in Epidemic Control* + **Lai-Sang Young**, New York University; Distinguished Visiting Professor, School of Mathematics and Natural Sciences

### April 10

Symplectic Seminar + *Geometry of Quantum Uncertainty* + **Leonid Polterovich**, Tel Aviv University

### April 13

Computer Science/Discrete Mathematics Seminar I + *Legal Theorems of Privacy* + **Kobbi Nissim**, Georgetown University

Analysis Seminar + *Flows of Vector Fields: Classical and Modern* + **Camillo De Lellis**, IBM von Neumann Professor, School of Mathematics

### April 14

Number Theory Working Group + *Dedekind Sums, Lattice Point Counting and  $K^2$*  + **Akshay Venkatesh**, Robert and Luisa Fernholz Professor, School of Mathematics

### April 15

Workshop on New Directions in Optimization, Statistics and Machine Learning + *Evaluating Lossy Compression Rates of Deep Generative Models* + **Roger Grosse**, Member, School of Mathematics + *Generative Modeling by Estimating Gradients of the Data Distribution* + **Stefano Ermon**, Stanford University + *Interpretability for Everyone* + **Been Kim**, Google Brain + *Iterative Random Forests (IRF) with Applications to Genomics and Precision Medicine* + **Bin Yu**, University of California, Berkeley + *Towards Robust Artificial Intelligence* + **Pushmeet Kohli**, Google + *A Snapshot of Few-Shot Classification* + **Richard Zemel**, University of Toronto; Visitor, School of Mathematics

Mathematical Conversations + *Vignettes about Pure Mathematics and Machine Learning* + **Jordan Ellenberg**, University of Wisconsin-Madison

### April 16

Joint IAS/Princeton University Number Theory Seminar + *Local-Global Compatibility in the Crystalline Case* + **Ana Caraiani**, Imperial College

Workshop on New Directions in Optimization, Statistics and Machine Learning + *Deep Equilibrium Models via Monotone Operators* + **Zico Kolter**, Carnegie Mellon University + *Do Simpler Models Exist and How Can We Find Them?* + **Cynthia Rudin**, Duke University + *Modularity, Attention and Credit Assignment: Efficient Information Dispatching in Neural Computations* + **Anirudh Goyal**, University of Montreal + *Steps towards More Human-Like Learning in Machines* + **Josh Tenenbaum**, Massachusetts Institute of Technology + *The Peculiar Optimization and Regularization Challenges in Multi-Task Learning and Meta-Learning* + **Chelsea Finn**, Stanford University and Google AI + *Tradeoffs between Robustness and Accuracy* + **Percy Liang**, Stanford University

### April 17

IAS/PU-Montreal-Tel-Aviv Symplectic Geometry Seminar + *Equivariant Quantum Operations and Relations between Them* + **Nicholas Wilkins**, University of Bristol

### April 20

Computer Science/Discrete Mathematics Seminar I + *Structure vs Randomness in Complexity Theory* + **Rahul Santhanam**, University of Oxford

Analysis Seminar + *A Variational Approach to the Regularity Theory for the Monge-Ampère Equation* + **Felix Otto**, Max Planck Institute Leipzig

### April 21

Seminar on Theoretical Machine Learning + *Assumption-Free Prediction Intervals for Black-Box Regression Algorithms* + **Aaditya Ramdas**, Carnegie Mellon University

Computer Science/Discrete Mathematics Seminar II + *Non-Commutative Optimization: Theory, Algorithms and Applications (Or, Can We Prove  $P \neq NP$  Using Gradient Descent)* + **Avi Wigderson**, Herbert H. Maass Professor, School of Mathematics

Number Theory Working Group + *Discrete Series Representations and  $L^2$ -Cohomology* + **Mikolaj Fraczyk**, Member, School of Mathematics

### April 22

Mathematical Conversations + *Sullivan's Clock: Dennis Sullivan's Counter-Example to the Periodic Orbit Conjecture* + **Richard Schwartz**, Brown University

April 23

Joint IAS/Princeton University Number Theory Seminar + *Symmetric Power Functoriality for Holomorphic Modular Forms* + **Jack Thorne**, University of Cambridge

Seminar on Theoretical Machine Learning + *Deep Generative Models and Inverse Problems* + **Alexandros Dimakis**, University of Texas at Austin

April 24

IAS/PU-Montreal-Tel-Aviv Symplectic Geometry Seminar + *The Geography of Immersed Lagrangian Fillings of Legendrian Submanifolds* + **Lisa Traynor**, Bryn Mawr College

April 27

Computer Science/Discrete Mathematics Seminar I + *Graph and Hypergraph Sparsification* + **Luca Trevisan**, Bocconi University

April 28

Analysis Seminar + *Ellipses of Small Eccentricity Are Determined by Their Dirichlet (Or, Neumann) Spectra* + **Steven Morris Zelditch**, Northwestern University

Computer Science/Discrete Mathematics Seminar II + *A Framework for Quadratic Form Maximization over Convex Sets* + **Vijay Bhattiprolu**, Member, School of Mathematics

Number Theory Working Group + *Runge's Method for Finding Solutions to Certain Diophantine Equations* + **Raphael Steiner**, Member, School of Mathematics

April 29

Mathematical Conversations + *Musings about a 10-Year Collaboration with Biological Morphologists, or How to Make Biologists Comfortable with Fiber Bundles* + **Ingrid Daubechies**, Duke University

April 30

Joint IAS/Princeton University Number Theory Seminar + *Eulerianity of Fourier Coefficients of Automorphic Forms* + **Henrik Gustafsson**, Member, School of Mathematics

Seminar on Theoretical Machine Learning + *Latent Stochastic Differential Equations for Irregularly-Sampled Time Series* + **David Duvenaud**, University of Toronto

May 1

IAS/PU-Montreal-Tel-Aviv Symplectic Geometry Seminar + *Zoll Contact Forms Are Local Maximisers of the Systolic Ratio* + **Alberto Abbondandolo**, Ruhr-Universität Bochum

May 4

Computer Science/Discrete Mathematics Seminar I + *Local Statistics, Semidefinite Programming, and Community Detection* + **Prasad Raghavendra**, University of California, Berkeley

Analysis Seminar + *Exponential Mixing of 3d Anosov Flows* + **Zhiyuan Zhang**, Université Paris 13

May 5

Seminar on Theoretical Machine Learning + *Boosting Simple Learners* + **Shay Moran**, Google Brain; Visitor, School of Mathematics

Computer Science/Discrete Mathematics Seminar II + *Recent Progress on Cutting Planes Proofs* + **Noah Fleming**, University of Toronto

Number Theory Working Group + *Local Langlands Correspondence for  $GL(2)$*  + **Anna Szumowicz**, Scuola Normale Superiore di Pisa

May 6

Mathematical Conversations + *Discrepancy Theory and Randomized Controlled Trials* + **Daniel Spielman**, Yale University

May 7

Joint IAS/Princeton University Number Theory Seminar + *On Triple Product L Functions* + **Jayce Robert Getz**, Duke University

Seminar on Theoretical Machine Learning + *Learning Probability Distributions; What Can, What Can't Be Done* + **Shai Ben-David**, University of Waterloo

May 8

IAS/PU-Montreal-Tel-Aviv Symplectic Geometry Seminar + *Spectral Characterizations of Besse and Zoll Reeb Flows* + **Marco Mazzucchelli**, École normale supérieure de Lyon

May 11

Computer Science/Discrete Mathematics Seminar I + *Using Discrepancy Theory to Improve the Design of Randomized Controlled Trials* + **Daniel Spielman**, Yale University

May 12

Number Theory Working Group + *Homology Stability for Unitary Groups over S-Arithmetic Rings* + **Rohit Nagpal**, Member, School of Mathematics

Seminar on Theoretical Machine Learning + *Generative Modeling by Estimating Gradients of the Data Distribution* + **Stefano Ermon**, Stanford University

Analysis Seminar + *Quantitative Decompositions of Lipschitz Mappings* + **Guy C. David**, Ball State University

Computer Science/Discrete Mathematics Seminar II + *Convex Set Disjointness, Distributed Learning of Halfspaces, and Linear Programming* + **Shay Moran**, Google Brain; Visitor, School of Mathematics

May 13

Mathematical Conversations + *The Simplicity Conjecture* + **Daniel Cristofaro-Gardiner**, University of California, Santa Cruz; von Neumann Fellow, School of Mathematics

May 14

Joint IAS/Princeton University Number Theory Seminar + *A Geometric View on Iwasawa Theory* + **Mladen Dimitrov**, Université de Lille

Seminar on Theoretical Machine Learning + *Mathzero, the Classification Problem, and Set-Theoretic Type Theory* + **David McAllester**, Toyota Technological Institute at Chicago

May 15

IAS/PU-Montreal-Tel-Aviv Symplectic Geometry Seminar + *Reflections on Cylindrical Contact Homology* + **Jo Nelson**, Rice University

May 18

Computer Science/Discrete Mathematics Seminar I + *The Non-Stochastic Control Problem* + **Elad Hazan**, Princeton University

Analysis Seminar + *Square Function Estimate for the Cone in  $\mathbb{R}^3$*  + **Hong Wang**, Member, School of Mathematics

May 19

Number Theory Working Group + *Density of Arithmetic Representations of Function Fields* + **Hélène Esnault**, Freie Universität Berlin, Visiting Professor, School of Mathematics

Seminar on Theoretical Machine Learning + *Neural SDEs: Deep Generative Models in the Diffusion Limit* + **Maxim Raginsky**, University of Illinois Urbana-Champaign

May 20

Mathematical Conversations + *Conley's Fundamental Theorem of Dynamical Systems* + **Amie Wilkinson**, University of Chicago

May 21

Joint IAS/Princeton University Number Theory Seminar + *Iwasawa Theory and Bloch-Kato Conjecture for Unitary Groups* + **Xin Wan**, Chinese Academy of Sciences

Seminar on Theoretical Machine Learning + *Forecasting Epidemics and Pandemics* + **Roni Rosenfeld**, Carnegie Mellon University

May 22

IAS/PU-Montreal-Paris-Tel-Aviv Symplectic Geometry Zoominar + *Mirrors of Curves and Their Fukaya Categories* + **Denis Auroux**, Harvard University

May 25

Analysis Seminar + *An Application of Integers of the 12th Cyclotomic Field in the Theory of Phase Transitions* + **Alik Mazel**, AMC Health

May 26

Number Theory Working Group + *Efficient Primality Tests* + **Avi Wigderson**, Herbert H. Maass Professor, School of Mathematics

May 27

Mathematical Conversations + *Emerging Symmetries in Statistical Physics Systems* + **Hugo Dumnil-Copin**, Université de Genève, Institut des Hautes Études Scientifiques

May 28

Joint IAS/Princeton University Number Theory Seminar + *Joint Equidistribution of Adelic Torus Orbits and Families of Twisted L-Functions* + **Farrell Brumley**, Université Sorbonne Paris Nord

May 29

IAS/PU-Montreal-Paris-Tel-Aviv Symplectic Geometry Zoominar + *Duality for Rabinowitz-Floer Homology* + **Alex Oancea**, Institut de Mathématiques de Jussieu-Paris Rive Gauche

June 1

Analysis Seminar + *Winding for Wave Maps* + **Max Engelstein**, University of Minnesota

June 2

Number Theory Working Group + *The Kottwitz Counting Formula for Abelian Varieties* + **Mark Goresky**, Visitor, School of Mathematics

June 3

Mathematical Conversations + *Mathematics Formalization for Mathematicians* + **Patrick Massot**, Université Paris-Sud

June 4

Joint IAS/Princeton University Number Theory Seminar + *Dynamical Generalizations of the Prime Number Theorem and Disjointness of Additive and Multiplicative Actions* + **Florian Richter**, Northwestern University

June 5

IAS/PU-Montreal-Paris-Tel-Aviv Symplectic Geometry Zoominar + *Three Short Research Talks* + **Morgan Weiler**, **Joé Brendel**, **Abror Pirnapasov**, University of California, Berkeley; University of Neuchâtel; Ruhr University Bochum

June 9

Number Theory Working Group + *Motives* + **Pierre Deligne**, Professor Emeritus, School of Mathematics

Seminar on Theoretical Machine Learning + *What Do Our Models Learn?* + **Aleksander Mądry**, Massachusetts Institute of Technology

June 11

Joint IAS/Princeton University Number Theory Seminar + *New Constraints on the Galois Configurations of Algebraic Integers in the Complex Plane* + **Vesselin Dimitrov**, University of Toronto

Seminar on Theoretical Machine Learning + *On Langevin Dynamics in Machine Learning* + **Michael I. Jordan**, University of California, Berkeley

June 12

IAS/PU-Montreal-Paris-Tel-Aviv Symplectic Geometry Zoominar + *Floer Cohomology and Arc Spaces* + **Mark McLean**, Stony Brook University

June 16

Number Theory Working Group + *A Gentle Introduction to Anabelian Geometry* + **Remy van Dobben de Bruyn**, Princeton University; Veblen Research Instructor, School of Mathematics

Seminar on Theoretical Machine Learning + *On Learning in the Presence of Biased Data and Strategic Behavior* + **Avrim Blum**, Toyota Technological Institute at Chicago

June 17

Mathematical Conversations + *Infinite Dimensional Hamiltonian Systems: When Hard Problems Become Harder* + **Gigliola Staffilani**, Massachusetts Institute of Technology

June 18

Joint IAS/Princeton University Number Theory Seminar + *Independence of  $l$  for Frobenius Conjugacy Classes Attached to Abelian Varieties* + **Rong Zhou**, Imperial College London

Seminar on Theoretical Machine Learning + *The Challenges of Model-Based Reinforcement Learning and How to Overcome Them* + **Csaba Szepesvári**, University of Alberta

June 19

IAS/PU-Montreal-Paris-Tel-Aviv Symplectic Geometry Zoominar + *Exotic Symplectomorphisms and Contact Circle Action* + **Igor Uljarevic**, University of Belgrade

June 23

Seminar on Theoretical Machine Learning + *Generalizable Adversarial Robustness to Unforeseen Attacks* + **Soheil Feizi**, University of Maryland

June 24

Mathematical Conversations + *Knot Concordance and 4-Manifolds* + **Lisa Piccirillo**, Brandeis University, Massachusetts Institute of Technology

June 25

Seminar on Theoretical Machine Learning + *Instance-Hiding Schemes for Private Distributed Learning* + **Sanjeev Arora**, Princeton University; Distinguished Visiting Professor, School of Mathematics

June 26

IAS/PU-Montreal-Paris-Tel-Aviv Symplectic Geometry Zoominar + *Distinguishing Monotone Lagrangians via Holomorphic Annuli* + **Ailsa Keating**, University of Cambridge

## School of Natural Sciences

### ASTROPHYSICS ACTIVITIES

September 9

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch Discussion Colloquium + *Reconstruction of Cosmological Fields in Forward Model Framework - Intensity Mapping & Galaxy Clustering* + **Chirag Modi**, University of California, Berkeley

September 10

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *Teasing Out the True Milky Way* + **Alyssa Goodman**, Harvard-Smithsonian Center for Astrophysics

September 12

Astrophysics Informal Seminar + *Electromagnetic Jets and the Black Hole Shadow* + **Roger Blandford**, Kavli Institute for Particle Astrophysics and Cosmology, Stanford University

September 17

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *The Galactic Center: A Laboratory for the Study of the Physics and Astrophysics of Supermassive Black Holes* + **Tuan Do**, University of California, Los Angeles

September 19

Astrophysics Informal Seminar + *Circumplanetary Disk Dynamics in the Isothermal and Adiabatic Limits* + **Jeffrey Fung**, Member, School of Natural Sciences

September 24

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *Breaking Through to the Other Side of Gravitational Waves* + **Rana Adhikari**, California Institute of Technology

September 26

Astrophysics Informal Seminar + *Optimization Ideas, Algorithms, Tools, and Some Astro-Related Examples* + **Robert Vanderbei**, Princeton University; Member, School of Natural Sciences

October 1

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *Finding Gravitational Waves from the Early Universe* + **Eiichiro Komatsu**, Max Planck Institute for Astrophysics

### October 3

Astrophysics Informal Seminar + *Long-Period Eclipsing Systems from Kepler Data* + **Kento Masuda**, Member, School of Natural Sciences

### October 8

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *Cosmic Collisions – Progress in Gravitational-Wave Astronomy* + **Patrick Brady**, University of Wisconsin–Milwaukee

### October 10

Astrophysics Informal Seminar + *Universal Interferometric Signatures of a Black Hole's Photon Ring* + **Alex Lupsasca**, Harvard University

### October 15

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *The Continuing Search for Planet Nine* + **Matthew Holman**, Harvard-Smithsonian Center for Astrophysics

### October 17

Astrophysics Informal Seminar + *Mid-band Atomic Gravitational wave Interferometric Sensor (MAGIS)* + **Peter Graham**, Stanford University

### October 21

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Extreme Emission Line Galaxies (EELs) as a Platinum Redshift Sample for Galaxy Clustering Measurements with LSST* + **Adam Broussard**, Rutgers, The State University of New Jersey

### October 22

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *Red Supergiants: New Perspectives on Dying Stars* + **Emily Levesque**, University of Washington

### October 24

Astrophysics Informal Seminar + *Characterizing Star-Planet Systems with Precision Spectroscopy* + **Megan Bedell**, Flatiron Institute, Center for Computation Astrophysics

### October 28

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Mapping the Magnetic Interstellar Medium in Three Dimensions Over the Full Sky with Neutral Hydrogen* + **Susan Clark**, Member, School of Natural Sciences + *Decorrelation from the 3D ISM* + **Brandon Hensley**, Princeton University

### October 31

Astrophysics Informal Seminar + *Solar Interiors, Helioseismology and Neutrinos* + **Aldo Serenelli**, Institute of Space Sciences, Spain

### November 4

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Neutrino Mass and Cosmic Flows* + **Hongming Zhu**, University of California, Berkeley + *Low- $z$  BAO Cosmology with HIRAX* + **Benjamin Saliwanchik**, Yale University

### November 5

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *Discovery Frontiers in the New Era of Time-Domain Multi-Messenger Astrophysics* + **Raffaella Margutti**, Northwestern University

### November 7

Astrophysics Informal Seminar + *Addressing the Initial Patch Problem of Inflation* + **Leonardo Senatore**, Stanford University

### November 12

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *CHIME: The Canadian Hydrogen Intensity Mapping Experiment* + **Kendrick Smith**, Perimeter Institute

### November 14

Astrophysics Informal Seminar + *Star Cluster Populations: The Link Between Star Formation and Galaxy Formation* + **Michael Fall**, Space Telescope Science Institute

### November 18

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *The Likelihood for Large-Scale Structure* + **Giovanni Cabass**, MPA + *Attractors, Bifurcations and Curvature in Multi-Field Inflation* + **Evangelos Sfakianakis**, Nikhef Amsterdam

### November 19

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *Generation I Planets* + **Yanqin Wu**, University of Toronto

### November 21

Astrophysics Informal Seminar + *Non-Gaussianity & the Spectral Tilt* + **Daniel Green**, University of California, San Diego

### November 26

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *How Do You Solve a Problem Like (Photometric) Supernovae?* + **Renée Hložek**, University of Toronto

### December 2

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Analytic Covariance of the Redshift-Space Galaxy Power Spectrum* + **Digvijay Wadekar**, New York University + *Interpolating the Cosmological Structure Formation with Machine Learning* + **Yin Li**, Flatiron Institute, Center for Computational Astrophysics

### December 3

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *Dynamics of Black Holes and Gravitational Waves* + **Hyung Mok Lee**, Korea Astronomy and Space Science Institute

### December 5

Astrophysics Informal Seminar + *Studying the Magnetic Field of the Diffuse ISM in 3D* + **Gina Panopoulou**, California Institute of Technology

### December 10

Institute for Advanced Study/Princeton University Joint Astrophysics Colloquium + *Surprising Impacts of Gravity Waves* + **Jim Fuller**, California Institute of Technology

### December 12

Astrophysics Informal Seminar + *Probing Microphysics of the Hot Intracluster Medium* + **Irina Zhuravleva**, University of Chicago

### December 16

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *CMB Lensing Tomography to  $Z \sim 2$  with Galaxies from the unWISE Catalog* + **Alex Krolewski**, University of California, Berkeley + *New Statistical Descriptions for Non-Gaussian Cosmology* + **Erwan Allys**, École Normale Supérieure

### January 30

Astrophysics Informal Seminar + *Quadruply Lensed Quasars, Extreme Deblending and LIGO-mass Primordial Black Holes* + **Paul Schechter**, Massachusetts Institute of Technology

### February 6

Astrophysics Informal Seminar + *Imaging Black Holes: Beyond the Shadow* + **Jason Dexter**, University of Colorado Boulder

### February 13

Astrophysics Informal Seminar + *Extracting Information from AGN Variability* + **Michael Vogeley**, Drexel University; Member, School of Natural Sciences

### February 20

Astrophysics Informal Seminar + *When Stars Attack! Near-Earth Supernova Explosions Revealed by Deep-Ocean and Lunar Radioactivity* + **Brian Fields**, University of Illinois

### February 27

Astrophysics Informal Seminar + *Exploring our Heliosphere from Inside-Out: Voyagers' Journey through the Solar Wind and Beyond* + **Jamie Rankin**, Princeton University; Princeton Plasma Physics Laboratory

### March 2

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Galaxy Correlation Function Estimators*

and Probabilistic Redshifts + **Humna Awan**, Rutgers, The State University of New Jersey + *Constraining Cosmology from Galaxy Surveys: Combining Full-Shape and BAO Analyses* + **Oliver Philcox**, Princeton University

#### March 5

Astrophysics Informal Seminar + *The Origin of Multiphase Galaxy Outflow* + **Evan Schneider**, Princeton University

#### March 12

Astrophysics Informal Seminar + *Black Hole Entropy and Quantum Information* + **Juan Maldacena**, Carl P. Feinberg Professor, School of Natural Sciences

#### March 16

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Effects of Overlapping Sources in Cosmic Shear Statistical Noise* + **Javier Sánchez**, Fermilab

#### March 17

Astrophysics Informal Seminar + *Study of White Dwarfs and Black Holes Through Astrometric Microlensing* + **Kailash Sahu**, Space Telescope Science Institute

#### March 23

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Early Dark Energy Does Not Restore Cosmological Concordance* + **Colin Hill**, Columbia University

#### March 30

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Blinded Challenge for Precision Cosmology with Galaxy Surveys* + **Mikhail Ivanov**, New York University; **Marko Simonović**, CERN

#### April 6

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Perfectly Parallel Cosmological Simulations Using Spatial Comoving Lagrangian Acceleration* + **Florent Leclercq**, Imperial College

#### April 13

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Description of Galaxy Distribution on Large Scales Utilizing the Equivalence Principle* + **Zvonimir Vlah**, CERN

#### April 20

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Dark Matter Waves* + **Lam Hui**, Columbia University

#### April 27

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Intensity Mapping with CO and CII as Probes of Primordial Non-Gaussianity* + **Azadeh Moradinezhad**, University of Geneva

#### May 4

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *A New Halo Model Formalism for the Cosmic Infrared Background (CIB) and its Correlation with the thermal Sunyaev-Zel'dovich Effect (tSZ)* + **Abhishek Maniyar**, New York University

#### May 11

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *What Can the Frontiers of Clusters Teach Us About the Dark Sector?* + **Omar Contigiani**, Leiden University

#### May 18

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *Probing the Tensor Consistency Relation with the CMB Bispectrum* + **Adri Duivenvoorden**, Princeton University + *Predicting Electron Gas into Dark Matter-only Simulations* + **Leander Thiele**, Princeton University

#### June 1

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch + *FlowPM: Distributed TensorFlow Implementation of the Cosmological N-body Solver* + **Chirag Modi**, University of California, Berkeley

#### June 8

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch

#### June 15

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch

#### June 22

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch

#### June 29

Institute for Advanced Study/Princeton University Early Universe/Cosmology Lunch

## HIGH ENERGY THEORY ACTIVITIES

#### September 11

Physics Group Meeting + *Introductory Group Meeting* + **Juan Maldacena**, Carl P. Feinberg Professor, School of Natural Sciences

#### September 16

High Energy Theory Seminar + *The Holographic Dual of Strongly-deformed  $N=4$  SYM Theory* + **Amit Sever**, CERN

#### September 18

Physics Group Meeting + *A Brief Review of some work on BPS States, Wall-Crossing, Hyperkahler Geometry, Hitchin Systems, etc.* + **Greg Moore**, Rutgers University

#### September 25

Physics Group Meeting + *Cardy Formula and AdS Black Holes* + **Joonho Kim**, Member, School of Natural Sciences

#### September 27

High Energy Theory Seminar + *Aspects of Scattering Amplitudes and Moduli Space Localization* + **Sebastian Mizera**, Member, School of Natural Sciences

#### September 30

High Energy Theory Seminar + *General F-theory Models with  $SU(3) \times SU(2) \times U(1) / Z_6$  Symmetry* + **Andrew Turner**, Massachusetts Institute of Technology

#### October 2

Physics Group Meeting + *Hawking Radiation at Strong Coupling: A Case for Braneworld Black Holes* + **Jorge Santos**, Junior Visiting Professor, School of Natural Sciences; University of Cambridge

#### October 9

Physics Group Meeting + *Black Hole Images and the Photon Ring* + **Daniel Kapec**, Member, School of Natural Sciences

#### October 14

High Energy Theory Seminar + *Entanglement Wedge Reconstruction and the Information Paradox* + **Geoff Penington**, Stanford University

#### October 16

Physics Group Meeting + *Matrix Models and Minimal Liouville Gravity* + **Baurzhan Mukhametzhano**, Member, School of Natural Sciences

#### October 23

Physics Group Meeting + *The Geroch Group* + **Robert Penna**, Member, School of Natural Sciences

#### October 25

High Energy Theory Seminar + *Correlation Functions in AdS3/CFT2* + **Lorenz Eberhardt**, Member, School of Natural Sciences

#### October 28

High Energy Theory Seminar + *Dynamical Constraints on RG Flows and Cosmology* + **Tom Hartman**, Cornell University

#### October 30

Physics Group Meeting + *Topological Holography* + **Nafiz Ishtiaque**, Member, School of Natural Sciences

#### November 1

High Energy Theory Seminar + *High-Energy Conformal Bootstrap and Tauberian Theory* + **Baurzhan Mukhametzhano**, Member, School of Natural Sciences

## November 6

Physics Group Meeting + *Disordered Electronic Systems: Some Illustrative Vignettes* + **Ravindra Bhatt**, Member, School of Natural Sciences; Princeton University

## November 15

High Energy Theory Seminar + *Deforming Holomorphic Chern-Simons at Large  $N$*  + **Si Li**, Member, School of Natural Sciences; Tsinghua University

## November 18

High Energy Theory Seminar + *TMF and SQFT* + **Theo Johnson-Freyd**, Perimeter Institute

## November 20

Physics Group Meeting + *On a Quantum Penrose Inequality* + **Adam Levine**, Member, School of Natural Sciences

## November 25

High Energy Theory Seminar + *Perspectives on the Generally-Relativistic Two-Body Problem from Double Copy & EFT* + **Radu Roiban**, Pennsylvania State University

## December 2

High Energy Theory Seminar + *Lorentz Symmetry Fractionalizations and Dualities in  $(2+1)d$*  + **Po-Shen Hsin**, Caltech

## December 3–4

Workshop on Qubits and Spacetime + *Complex SYK Model* + **Alexei Kitaev**, California Institute of Technology + *Hypergraphs as Applied to Quantum Information* + **Ning Bao**, Brookhaven National Lab/University of California, Berkeley + *A Canonical Purification for the Entanglement Wedge Cross-Section* + **Thomas Faulkner**, University of Illinois, Urbana-Champaign + *Black Hole Coarse Graining, Connes-Cocycle Flow and its Bulk Dual* + **Raphael Bousso**, University of California, Berkeley + *Replica Wormholes and the Black Hole Interior (Part I)* + **Douglas Stanford**, Stanford University + *Replica Wormholes and the Black Hole Interior (Part II)* + **Geoffrey Penington**, Stanford University + *Toy Models for Evaporating Black Hole* + **Xiaoliang Qi**, Stanford University + *Replica Wormholes and the Entropy of Hawking Radiation* + **Ahmed Almheiri**, Long-term Member, School of Natural Sciences + *Holographic Negativity* + **Xi Dong**, University of California, Santa Barbara + *The First Law of Complexity* + **Alice Bernamonti**, University of Florence + *Random Quantum Circuits, Phase Transitions and Complexity* + **Aram Harrow**, Massachusetts Institute of Technology + *Treelike Geometries and Fast Scrambling from Nonlocal Spin Models* + **Gregory Bentsen**, Princeton University + *Entanglement Wedge Reconstruction in Infinite-Dimensional Hilbert Spaces* + **Monica Jinwoo Kang**, California Institute of Technology + *Beyond the Ensemble: Return of the Baby Universes* + **Henry Maxfield**, University of California, Santa Barbara

## December 11

Physics Group Meeting + *Towards Optimal Asymptotic Spectral Gap in 2D Unitary CFT* + **Sridip Pal**, Member, School of Natural Sciences

## December 13

High Energy Theory Seminar + *Topological Quantum Phases* + **Alexei Kitaev**, Distinguished Visiting Professor, School of Natural Sciences; Caltech

## February 3

High Energy Theory Seminar + *X-ray Search for Axions from Nearby Isolated Neutron Stars* + **Ben Safdi**, University of Michigan

## February 10

High Energy Theory Seminar + *An Effective Field Theory of Quantum Black Hole Horizons* + **Walter Goldberger**, Yale University

## February 14

High Energy Theory Seminar + *Reparametrization Modes in CFTs & Applications* + **Felix Haehl**, Member, School of Natural Sciences

## February 24

High Energy Theory Seminar + *Conformal Fishnet Theory* + **Vladimir Kazakov**, Ecole Normale Supérieure

## February 28

High Energy Theory Seminar +  $\lambda\phi^4$  in  $dS$  + **Victor Gorbenko**, Member, School of Natural Sciences

## March 16

High Energy Theory Seminar + *Covariant Phase Space with Boundaries* + **Daniel Harlow**, Massachusetts Institute of Technology

## March 25

Physics Group Meeting + *Euclidean Wormholes* + **Juan Maldacena**, Carl P. Feinberg Professor, School of Natural Sciences

## March 27

High Energy Theory Seminar + *Solving Random Matrix Models with Positivity* + **Henry Lin**, Princeton University

## March 30

High Energy Theory Seminar + *Geometry and  $5d N=1$  QFTs* + **Lakshya Bhardwaj**, Harvard University

## April 1

Physics Group Meeting + *3d Ising Model and String Theory* + **Shota Komatsu**, Member, School of Natural Sciences

## April 8

Physics Group Meeting + *A Nilpotency Index of Conformal Manifolds* + **Petr Kravchuk**, Member, School of Natural Sciences

## April 15

Physics Group Meeting + *Pseudorandomness in Black Hole Evaporation* + **Edward Witten**, Charles Simonyi Professor, School of Natural Sciences

## April 17

High Energy Theory Seminar + *A Tutorial on Entanglement Island Computations* + **Raghu Mahajan**, Member, School of Natural Sciences

## April 22

Physics Group Meeting + *Continuum Quantum Field Theories for Fractons* + **Nathan Seiberg**, Professor, School of Natural Sciences

## April 27

High Energy Theory Seminar + *Twisted M-theory and Holography* + **Davide Gaiotto**, Perimeter Institute

## May 1

High Energy Theory Seminar + *A Quantum Circuit Interpretation of Evaporating Black Hole Geometry* + **Ying Zhao**, Member, School of Natural Sciences

## May 6

Physics Group Meeting + *JT Gravity at Finite Cutoff* + **Luca Iliesiu**, Princeton University

## May 13

Physics Group Meeting + *Divergences in String Perturbation Theory* + **Lorenz Eberhardt**, Member, School of Natural Sciences

## May 15

High Energy Theory Seminar + *Entanglement Entropy in Flat Holography* + **Wei Song**, Member, School of Natural Sciences; Tsinghua University

## May 20

Physics Group Meeting + *Matrix Ensembles with Global Symmetries and 't Hooft Anomalies from 2d Gauge Theory* + **Daniel Kapec**, Member, School of Natural Sciences

## May 27

Physics Group Meeting + *Effective Field Theory of Dissipation in Hydrodynamics* + **Felix Haehl**, Member, School of Natural Sciences

## June 3

Physics Group Meeting + *Asymptotic Symmetries in  $(d+2)$ -dimensional Gauge Theories* + **Prahar Mitra**, Member, School of Natural Sciences

## June 10

Physics Group Meeting + *Scrambling-Assisted Wormhole Teleportation Microscopies* + **Alexandre Streicher**, Member, School of Natural Sciences; Perimeter Institute for Theoretical Physics

## June 24

Physics Group Meeting + *Generalized Global Symmetries, the Weak Gravity Conjecture, and the Completeness Hypothesis* + **Tom Rudelius**, Member, School of Natural Sciences

## July 15

Physics Group Meeting + *Rotations of an Axion Field in the Early Universe* + **Keisuke Harigaya**, Member, School of Natural Sciences

## July 20

High Energy Theory Seminar + *Non-perturbative Studies of JT Gravity and Supergravity using Minimal Strings* + **Clifford V. Johnson**, University of Southern California

## July 22

Physics Group Meeting + *Reconstructing the Black Hole Interior with Modular Flow* + **Yiming Chen**, Princeton University

## July 24

High Energy Theory Seminar + *Many Body Scars as a Group Invariant Sector of Hilbert Space* + **Kiryl Pakrouski**, Princeton University

## August 10

High Energy Theory Seminar + *Stellar Basins of Gravitationally Bound Particles* + **Ken Van Tilburg**, KITP, University of California, Santa Barbara

## August 17

High Energy Theory Seminar + *Enhanced Corrections to the Page Curve near Holographic Entanglement Transitions* + **Xi Dong**, University of California, Santa Barbara

## August 24

High Energy Theory Seminar + *An Update on Exact WKB and Supersymmetric Field Theory* + **Andy Neitzke**, Yale University

## August 28

High Energy Theory Seminar + *Partition Functions of the Tensionless String* + **Lorenz Eberhardt**, Member, School of Natural Sciences

## THE SIMONS CENTER FOR SYSTEMS BIOLOGY ACTIVITIES

### September 12–13

Arnie at 80! Birthday Celebration. Session I: Highlights from a Career at Four Institutions + *Epigenetic Regulation in Development and Disease* + **Rudolf Jaenisch**, Whitehead Institute + *Human Satellite II RNA Supports the Replication of Human Cytomegalovirus* + **Thomas Shenk**, Princeton University + *Telomeres and Cancer* + **Titia de Lange**, The Rockefeller University + *Biology at the IAS – the Arnie Era* + **Harlan Robins**, Adaptive Biotechnologies + Session II: *p53 + Functional States of p53: You Lose Some, You Gain Some* + **Moshe Oren**, Weizmann Institute

of Science + *Therapeutic Ablation of Gain-of-Function (GOF) Missense Mutant p53 Identifies it as Critical Anti-Tumor Target* + **Ute Moll**, Renaissance School of Medicine + *Regulating p53 activity: the Ups and Downs* + **Guillermina Lozano**, MD Anderson Cancer Center + Session III: *Systems Biology at IAS + Li-Fraumeni Syndrome Tumorigenesis* + **Chang Chan**, Rutgers Cancer Institute of New Jersey + *Harnessing Immune Interactions to Predict Cancer Evolution* + **Marta Luksza**, Mount Sinai + *Stemness Genes in Prostate Cancer, a Systems Approach* + **Elke Markert** + Institute of Cancer Sciences, Glasgow University + Session IV: *Convergence Research + What is Not Self?* + **Benjamin Greenbaum**, Mount Sinai + *The Pandemic Arnie* + **Raul Rabadan**, Columbia University + *Duality of the T Cell Receptors + Mickey Atwal, Cold Spring Harbor Laboratory + Session V: *Cancer Research and the Future + The Effects of the EMT Program on Carcinoma Biology* + **Robert Weinberg**, Whitehead Institute, MIT + *Cancer Stem Cell Types and the Order of Mutations Impact the Age of Onset of Cancers* + **Arnold J. Levine**, Professor Emeritus, School of Natural Sciences*

### November 19

Joshua Lederberg – John von Neumann Symposium: *Towards Quantitative Biology (at The Rockefeller University)* + *Primary Productivity of the Planet* + **Paul Falkowski**, Rutgers Energy Institute, Rutgers University + *The Biomass Distribution on Earth* + **Ron Milo**, Weizmann Institute of Science + *Structure and Dynamics of Microbial Ecosystems in Sediment* + **Alexander Petroff**, Clark University + *Tigers in the 21st Century: Survival or Extinction?* + **Uma Ramakrishnan**, National Centre for Biological Sciences; Wellcome Trust/DBT India Alliance + *Biodiversity Change During the Anthropocene* + **Mark Vellend**, Université de Sherbrooke

### December 6

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *Land, irrigation water, greenhouse gas, and reactive nitrogen burdens of meat, eggs, and dairy production in the United States* + **Gidon Eshel**, Bard College

### February 5

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *Associative Memory of Structured Knowledge* + **Julia Steinberg**, Harvard University

### February 10

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *Kinetic Uncertainty Relations for the Control of Stochastic Reaction Networks* + **Jiawei Yan**, Harvard University

### February 26

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *Stochastic Dynamics Applied to Biological Systems* + **Nicolas Lenner**, Max-Planck Institute for Dynamics and Self-Organization, Göttingen, Germany

### March 4

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *Mathematics of Small Neural Networks* + **Carina Curto**, The Pennsylvania State University

### March 23

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *A Bottleneck Method of Extracting Relevant Information from Redundant Signals* + **Naftali Tishby**, Hebrew University of Jerusalem

### March 24

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *A Bottleneck Method of Extracting Relevant Information from Redundant Signals* + **Naftali Tishby**, Hebrew University of Jerusalem

### March 25

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *Collective Behavior of Bacteria and Robots in Complex and Dynamical Environments* + **Trung Phan**, Princeton University

### April 1

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *Collective Behavior of Bacteria and Robots in Complex and Dynamical Environments* + **Trung Phan**, Princeton University

### April 8

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *Detecting stimulus dimension, sequences, and topology of neural activity* + **Vladimir Itskov**, The Pennsylvania State University

### May 7

The Simons Center for Systems Biology Informal Talks on Abstract/Conceptual/Quantitative Aspects of Biology (Virtual Seminar) + *Mathematical modeling of ageing and depression* + **Omer Karin**, Weizmann Institute

## June 18

Cancer Convergence Education Network (Virtual Conference). Progress in Immunotherapy + *A role and rationale for neoadjuvant immune checkpoint blockade in cancer therapy* + **Suzanne Topalian**, Johns Hopkins Medicine + *How does checkpoint blockade change the repertoire and genetic programming of neoantigen-specific T cells?* + **Drew Pardoll**, Johns Hopkins Medicine + *Immune Checkpoint Blockade in Cancer Therapy: New insights into therapeutic mechanisms* + **James Allison**, University of Texas, MD Anderson Cancer Center + *From the Clinic to the Lab: Investigating Mechanisms of Response and Resistance to Immune Checkpoint Therapy* + **Padmanee Sharma**, University of Texas, MD Anderson Cancer Center + *Decoding the cellular adaptive immune response to cancer* + **Harlan Robins**, Adaptive Biotechnologies

## August 12

CCEN Virtual Meeting + *Using evolutionary theory to gain insights into clonal haematopoiesis and blood cancer risk* + **Jamie Blundell** + *Synonymous mutations reveal genome-wide driver mutation rates in healthy tissues* + **Gladys Poon** + *Pregnancy Specific Glycoproteins talk* + **Arnold J. Levine**, Professor Emeritus, School of Natural Sciences + *Description of New Convergence Teams Project* + **Arnold J. Levine**, Professor Emeritus, School of Natural Sciences

## School of Social Science

### September 20

Social Science Orientation Session

Social Science Welcome Party

### September 23

Social Science Seminar + *Invoking Healing, or How to Think Therapeutically* + **Ed Cohen**, Rutgers, The State University of New Jersey; Member, School of Social Science

### September 30

Social Science Seminar + *Hope for a Cure: AIDS Activists, Beautiful Lies, and the World's First "Edited" Children* + **Eben Kirksey**, Deakin University; Member, School of Social Science

### October 2

Economy and Society Seminar + *Boom, Doom, Gloom* + Readings curated by **Benjamin Braun**, Max-Planck-Institut für Gesellschaftsforschung, and **Sarah Quinn**, University of Washington; Members, School of Social Science

Economy and Society Film Series + *The Big Short*, directed by Adam McKay; post-screening discussion led by **Benjamin Braun**, Max-Planck-Institut für Gesellschaftsforschung, and **Sarah Quinn**, University of Washington; Members, School of Social Science

### October 7

Social Science Seminar + *Unpayable Debts, Emancipatory Debts. The Political and Moral Economies of Women's Debt and Women's Bodies* + **Isabelle Guérin**, Institut de Recherche pour le Développement, Paris; Member, School of Social Science

### October 8

Credit and Finance Working Group

### October 14

Social Science Seminar + *Of Other Brotherhoods: Mafia, Freemasons, and the Changing Criminalization of Ritual Relationships in Sicily* + **Naor H. Ben-Yehoyada**, Columbia University; Member, School of Social Science

### October 16

Economy and Society Seminar + *From the Welfare State to the Debtfare State* + Readings curated by **Lena Lavinás**, Universidade Federal do Rio de Janeiro, and **Chloe Thurston**, Northwestern University; Members, School of Social Science

### October 18

Guest Seminar United Nations Workshop + *Private Debt and Human Rights* + **Juan Pablo Bohoslavsky**, Office of the UN's High Commission on Human Rights

### October 21

Social Science Seminar + *In the Margins of Medical Evidence: Expert Witnessing and State Violence in Turkey* + **Başak Can**, Koç Üniversitesi; Member, School of Social Science

### October 28

Social Science Seminar + *Credit from the State, Credit to the State* + **Sarah Quinn**, University of Washington; Member, School of Social Science

Guest Seminar + *Rights, Reform, and Contestation: Land Dispossession, Gender, and Alternative Models for Justice* + **Souad Eddouada**, Ibn Toufail University, Morocco

### October 30

Current Issues Seminar + **Başak Can**, Koç Üniversitesi, and **Latif Tas**, SOAS University of London; Members, School of Social Science

Economy and Society Seminar + *Resistance and Redemption: On Debt, Finance, and Mobilization* + Readings curated by **Benjamin Lemoine**, Université Paris-Dauphine, and **Z. Fareen Parvez**, University of Massachusetts, Amherst; Members, School of Social Science; screening of scenes from documentary film *Bricks*, directed by **Quentin Ravelli**; post-screening discussion led by **Quentin Ravelli**

### November 2

Joint Workshop + *Gene Editing and Hope for an HIV Cure* + Organized by **Eben Kirksey**, Deakin University; Member, School of Social Science, and **Myles W. Jackson**, Professor, School of Historical Studies

### November 4

Social Science Seminar + *Autochthony, Line Systems and State Building in Nigeria* + **Jeremiah O. Arowosegbe**, University of Ibadan; Member, School of Social Science

### November 6–7

Workshop on Social and Ethical Challenges in Machine Learning + Organized by **Sanjeev Arora**, Princeton University; Distinguished Visiting Professor, School of Mathematics, **Didier Fassin**, James D. Wolfensohn Professor, School of Social Science, **Jacob Gates Foster**, University of California, Los Angeles, and **Marion Fourcade**, University of California, Berkeley; Visiting Professor, School of Social Science

### November 6

Public Lecture + *Artificial Intelligence, Ethics, and Society: A Cross-Disciplinary Conversation* + **Pedro Domingos**, University of Washington, and **Mary Gray**, Microsoft and Harvard University; moderated by **Alondra Nelson**, Harold F. Linder Professor, School of Social Science

### November 11

Social Science Seminar + *The Ethical Stance and the Possibility of Critique* + **Webb Keane**, University of Michigan, Ann Arbor; Member, School of Social Science

Credit and Finance Working Group + *A Political Anthropology of Finance: Studying the Distribution of Money in the Financial Industry as a Political Process* + **Horacio Ortiz**, East China Normal University; Member, School of Social Science

### November 13

Economy and Society Seminar + *Reparative Justice as Historical Redress* + Readings curated by **Naor H. Ben-Yehoyada**, Columbia University, **Robert Karl**, Institute for Advanced Study, and **Latif Tas**, SOAS University of London; Members, School of Social Science

Economy and Society Film Series + *Valley of Saints*, directed by Musa Syeed; post-screening discussion led by **Z. Fareen Parvez**, University of Massachusetts, Amherst; Member, School of Social Science, and **Nafeesa Syeed**, Director's Visitor, Institute for Advanced Study

### November 15–16

Crisis and Critique Workshop + Organized by **Axel Honneth**, Goethe-Universität Frankfurt and Columbia University, and **Didier Fassin**, James D. Wolfensohn Professor, School of Social Science

### November 18

Social Science Seminar + *Reinventing Oneself during the Crisis. Autonomy and Dependencies between Conflict and Solidarity* + **Susana Narotzky**, Universitat de Barcelona; Member, School of Social Science

## November 25

Social Science Seminar + *Wealth Regimes: The Political Economy of Asset Management* + **Benjamin Braun**, Max-Planck-Institut für Gesellschaftsforschung; Member, School of Social Science

## November 26

Economy and Society Seminar + *Framing Economic Lives* + Readings curated by **Isabelle Guérin**, Institut de Recherche pour le Développement, Paris, **Susana Narotzky**, Universitat de Barcelona; and **Federico Neiburg**, Universidade Federal do Rio de Janeiro; Members, School of Social Science

## December 2

Social Science Seminar + *Market Logics, Minority Rights, and American Political Development* + **Chloe Thurston**, Northwestern University; Member, School of Social Science

## December 9

Social Science Seminar + *The Crystalline Medium: Computation and Its Consequences* + **Alexander R. Galloway**, New York University; Member, School of Social Science

## December 10

Credit and Finance Working Group + *The Missing Movement: Credit, Debt Relief, and the Limits of Anti-Discrimination Politics* + **Chloe Thurston**, Northwestern University; Member, School of Social Science, **Emily Zackin**, Johns Hopkins University, and **Marion Fourcade**, University of California, Berkeley; Visiting Professor, School of Social Science

## December 11

Economy and Society Seminar + *Power of the Digital, Digital Powers* + Readings curated by **Horacio Ortiz**, East China Normal University; Member, School of Social Science, and **Marion Fourcade**, University of California, Berkeley; Visiting Professor, School of Social Science

Economy and Society Film Series + *Graduation*, directed by **Cristian Mungiu**; post-screening discussion led by **Naor H. Ben-Yehoyada**, Columbia University and **Virag Molnar**, The New School; Members, School of Social Science

## December 16

Social Science Seminar + *Class Trips Beyond Borders: State-Sponsored Heritage Tourism and Ethnic Nationalism* + **Virag Molnar**, The New School; Member, School of Social Science

## January 21

Social Science Seminar + *What is Sudanese Political Economy?: Reflections on the Crises of the 1970s* + **Alden H. Young**, University of California, Los Angeles; Member, School of Social Science

Credit and Finance Working Group + *Searching Life in Economy and Ethnography* + **Isabelle Guérin**, Institut de Recherche pour le

Développement, Paris, and **Federico Neiburg**, Universidade Federal do Rio de Janeiro; Members, School of Social Science

## January 27

Social Science Seminar + *The Carceral Colony: Prison before the Penitentiary in North America* + **Wendy Warren**, Princeton University; Member, School of Social Science

## January 29

Current Issues Seminar + *Focus on Brazil* + **Lena Lavinas** and **Federico Neiburg**, Universidade Federal do Rio de Janeiro; Members, School of Social Science

Economy and Society Seminar + *Global Monetary Hierarchies* + **Pierre-Olivier Gourinchas**, University of California, Berkeley; readings curated by **Benjamin Braun**, Max-Planck-Institut für Gesellschaftsforschung, **Horacio Ortiz**, East China Normal University, and **Alden H. Young**, University of California, Los Angeles; Members, School of Social Science

## February 3

Social Science Seminar + *Suspects' Appearance, Origin, and DNA in France. Elements for a Political Conception of Privacy* + **Joëlle Vailly**, Centre National de la Recherche Scientifique, Paris; Member, School of Social Science

## February 10

Social Science Seminar + *#Help: The Digital Transformation of Humanitarianism and the Governance of Populations* + **Fleur Johns**, University of New South Wales, Sydney; Member, School of Social Science

## February 11

Credit and Finance Working Group + *Sex Debt: Coerced Bodies, Desiring Bodies in Rural South India* + **Isabelle Guérin**, Institut de Recherche pour le Développement, Paris; Member, School of Social Science

## February 12

Economy and Society Seminar + *Temporalities of Economy and Society* + readings curated by **Herbert Docena**, University of the Philippines Diliman, **Fleur Johns**, University of New South Wales, Sydney, and **Virag Molnar**, The New School; Members, School of Social Science

Economy and Society Film Series + *People's Republic of Desire*, directed by **Hao Wu**; post-screening discussion led by **Horacio Ortiz**, East China Normal University; Member, School of Social Science, and **Julia Chuang**, Boston College; Visitor, School of Social Science

## February 18

Social Science Seminar + *The Rise of Venture Capital, the Return of Inequality, and the Demise of Innovation in the United States, 1936–1982* + **Julia Ott**, The New School; Member, School of Social Science

## February 24

Social Science Seminar + *Gate of Tears: Migration and Impasse in Yemen and the Horn of Africa* + **Nathalie M. Peutz**, New York University Abu Dhabi; Member, School of Social Science

## February 26

Current Issues Seminar + *Focus on Sudan* + **Alden H. Young**, University of California, Los Angeles; Member, School of Social Science

Economy and Society Seminar + *Money, Circuits, and Social Relations* + **Viviana Zelizer**, Princeton University; readings curated by **Marion Fourcade**, University of California, Berkeley; Visiting Professor, School of Social Science, **Federico Neiburg**, Universidade Federal do Rio de Janeiro; Member, School of Social Science, and **Frederick F. Wherry**, Princeton University; Visitor, School of Social Science

## March 2

Social Science Seminar + *Ordinal Citizenship* + **Marion Fourcade**, University of California, Berkeley; Visiting Professor, School of Social Science

## March 4–5

Workshop on Machine Learning, Theory, and Method in the Social Sciences + Organized by **Sanjeev Arora**, Princeton University; Distinguished Visiting Professor, School of Mathematics, **Didier Fassin**, James D. Wolfensohn Professor, School of Social Science, **Jacob Gates Foster**, University of California, Los Angeles, and **Marion Fourcade**, University of California, Berkeley; Visiting Professor, School of Social Science

## March 4

Public Lecture + *Re-Imagining the Social Sciences in the Age of AI: A Cross-Disciplinary Conversation* + **Elizabeth Bruch**, University of Michigan, and **Thomas Griffiths**, Princeton University; moderated by **Jacob Gates Foster**, University of California, Los Angeles

## March 9

Social Science Seminar + *The Debt Economy in Urban India* + **Z. Fareen Parvez**, University of Massachusetts, Amherst; Member, School of Social Science

## March 11

Economy and Society Seminar + *International Migrations, Gender and Economy* + **Anne-Claire Defosse**, Institute for Advanced Study and **Ravi Kanbur**, Cornell University; Visitors, School of Social Science, and **Didier Fassin**, James D. Wolfensohn Professor, School of Social Science

*From this point on, the seminars took place online with virtual participation via Zoom.*

March 25

Economy and Society Seminar + *Religion and Moral Economy* + Readings curated by **Webb Keane**, University of Michigan, Ann Arbor and **Nathalie M. Peutz**, New York University Abu Dhabi; Members, School of Social Science, and **Justin Stearns**, New York University Abu Dhabi; Member, School of Historical Studies

March 30

Social Science Seminar + *Parallel State and Governmentality: Kurdish Response to Authoritarianism* + **Latif Tas**, SOAS University of London; Member, School of Social Science

March 31

Credit and Finance Working Group + Discussion of readings by **Benjamin Lemoine**, Université Paris-Dauphine; Member, School of Social Science

April 6

Social Science Seminar + *The Digitalization of Money in China* + **Horacio Ortiz**, East China Normal University; Member, School of Social Science

April 13

Social Science Seminar + *From Rights to Entitlements to Assets: The Warping of Welfare Regimes* + **Lena Lavinias**, Universidade Federal do Rio de Janeiro; Member, School of Social Science

April 7

Credit and Finance Working Group

April 20

Social Science Seminar + *Embedded (and dis-embedded) Sovereignty. Government Debt, New York Law and Financial Order* + **Benjamin Lemoine**, Université Paris-Dauphine; Member, School of Social Science

April 22

Social Science Seminar + *Writing History from Colombia's Alcatraz* + **Robert Karl**, Institute for Advanced Study; Member, School of Social Science

April 22

Economy, Society and Covid-19: Collective Project around the Pandemic + Planning Meeting

April 27

Social Science Seminar + *Life, Economy and Economic Emergencies* + **Federico Neiburg**, Universidade Federal do Rio de Janeiro; Member, School of Social Science

May 4

Social Science Seminar + *Sexual Violence and the State: A Racial History of Legal Castration in North America* + **Greta LaFleur**, Yale University; Member, School of Social Science

May 5

Credit and Finance Working Group

May 11

Social Science Seminar + *'We are not beggars': Recognition, Resentment, and the Rise of 'Market-based' Global Environmental Regulation* + **Herbert Docena**, University of the Philippines Diliman; Member, School of Social Science

Economy and Society Seminar + *Race and Capitalism* + **Michael C. Dawson**, University of Chicago, and **Megan Ming Francis**, University of Washington

May 12

Credit and Finance Working Group

May 13

Social Science Seminar + *The New Technocrats: Science and Ethics in the Obama Administration* + **Alondra Nelson**, Harold F. Linder Professor, School of Social Science

May 18

Social Science Seminar + *Beveridgean Unemployment Gap* + **Pascal Michailat**, Brown University; Member, School of Social Science

May 19

Credit and Finance Working Group

June 2

Credit and Finance Working Group

## Director's Office Events

September 23

Member Welcome Reception

September 28

Member Family Barbeque

October 4

Edward T. Cone Concert Series + **Meredith Monk and Company**

October 5

Edward T. Cone Concert Series and Talk + **Meredith Monk and Company**

October 11

Friends Dinner with a Member + *The Story of Trigonometry: Revolutions in the Heavens, and on Earth* + **Glen Van Brummelen**, Quest University Canada; Member, School of Historical Studies

October 19

Family Science Talk + *Einstein's Dream* + **Robbert Dijkgraaf**, IAS Director and Leon Levy Professor

October 20

Princeton Symphony Orchestra Chamber Series + *Music for Oboe and Strings*

October 25

Public Lecture + *Primes and Knots* + **Akshay Venkatesh**, Robert and Luisa Fernholz Professor, School of Mathematics

October 31

Institute Community Halloween Party

November 1

Friends Talk + *Black Metaphors: How Modern Racism Emerged from Medieval Race-Thinking—and Why It Matters* + **Cord Whitaker**, Wellesley College; Member, School of Historical Studies

November 15

Edward T. Cone Concert Series + **Conrad Tao**

November 16

Edward T. Cone Concert Series and Talk + **Conrad Tao**

November 20

S.T. Lee Public Lecture + *Architecture in Two Dimensions: The Case for and Against Drawing* + **Alina Payne**, Harvard University

November 21

Friends Circle Dinner + *Spolia* + **Nora Okka**, Director's Visitor

November 22

Friends Lunch with a Member + *The Road to Gödel's Incompleteness Theorems* + **Juliette Kennedy**, University of Helsinki; Visitor, School of Historical Studies

November 24

Princeton Symphony Orchestra Chamber Series + *Marc Uys and Friends*

December 4

Friends Public Lecture + *What Is the Value of the Humanities? How We Read (and Write) Today* + **Suzanne Conklin Akbari**, Professor, School of Historical Studies

December 13

Institute Community Reception Celebrating Freeman J. Dyson's 96th Birthday

December 19

Institute Community Holiday Party

January 17

Friends Lunch with a Member + *Credit from the State, Credit to the State* + **Sarah Quinn**, University of Washington; Member, School of Social Science

January 29

Friends Talk + *Eliot and Women* + **Lyndall Gordon**

January 31

Edward T. Cone Concert Series + **Vicki Ray and Flux Quartet**

February 1

Edward T. Cone Concert Series and Talk + **Vicki Ray and Flux Quartet**

February 5

Impact of the Past Lecture + *Anti-Semitism—Past and Present* + **Karina Urbach**, Visitor, School of Historical Studies; **Daniel Finkelstein**; **Julie Gottlieb**, University of Sheffield; **Deborah Lipstadt**, Emory University

February 19

Institute Community Reception Celebrating Enrico Bombieri's Craford Prize

February 21

Friends Lunch with a Member + *A Tale of Two Camps: Yemeni Refugees and Ethiopian Migrants in the Horn of Africa* + **Nathalie Peutz**, New York University Abu Dhabi; Member, School of Social Science

February 22

Midwinter Party for Faculty, Members, and Staff

February 28

Artist-in-Residence Special Presentation + *Farmhouse/Whorehouse: an Artist Lecture* by **Suzanne Bocanegra** Starring **Lili Taylor** + **Suzanne Bocanegra**; **Lili Taylor**

March 6

Friends Dinner with a Member + *Global Hunger/Scientific Solutions? A "Universal" Solution to End World Hunger* + **Gabriela Soto Laveaga**, Member, School of Historical Studies

*Events after March 6 were conducted remotely.*

May 8

Friends Lunch with a Member + *Math, Shadows, and Digital Sundials* + **Silvia Ghinassi**, Member, School of Mathematics

May 15

Friends Lunch with a Member + *Will I Have to Mortgage My House? Reflections on Gene Therapy, Innovation, and Inequality* + **Eben Kirksey**, Deakin University; Member, School of Social Science

May 22

Friends Lunch with a Member + *Victorian Fiction and the Location of Experience* + **Adela Pinch**, University of Michigan; Visitor, School of Social Science

May 29

Friends Lunch with a Member + *Sudan in a Time of Revolution* + **Alden H. Young**, University of California, Los Angeles; Member, School of Social Science

July 16

Friends Talk + *Atomic Spy: The Dark Lives of Klaus Fuchs* + **Nancy Greenspan**

## Digital Scholarship@IAS

November 21

Digital Scholarship Conversations + *A Digital Information System for the History of Astral Sciences (DISHAS): Why, and How?* + **Mathieu Husson**, Observatoire de Paris, Université PSL

December 18

Digital Scholarship Conversations + *Egyptology in the Digital Age* + **Verena Lepper**, Princeton University

February 27

Digital Scholarship Conversations + *The Aramaic Online Project—methods and challenges in creating a Neo-Aramaic literary language* + **Shabo Talay**, Freie Universität Berlin