The IAS program I co-organized in 2014-1015 with Burt Totaro was entitled ``The Topology of Algebraic Varieties. I can see now at least three distinct subjects in which the activities we had at that time led to developments that I consider as striking.

1) **Rationality questions**. In 2014, my paper on stable rationality by degeneration just appeared at Inventiones. It was the first paper proving the stable irrationality of a unirational variety with trivial Brauer group. It had been generalized soon by Colliot-Thélène and Pirutka who presented the results in a more general setting and under assumptions on singularities that allowed more applications. During the year at IAS, Totaro beautifully combined their work with a specialization originally constructed by Kollár in 1995. This allowed Totaro to prove that general hypersurfaces in projective space, in a range of degree similar but slightly broader than Kollár's, are not stably rational. The subject of stable irrationality (in particular for hypersurfaces and complete intersections) has exploded since, with major work of Schreieder (a long-term participant of our program), following the strategy above but with a very different range of degrees. Other completely different specialization arguments appeared later on, (due to Kontsevich-Tschinkel, Nicaise-Shinder…) and in the last year, at least two spectacular results were announced on this subject, one by Schreieder and his collaborators.
2) **Hodge theory.** There is a special program at IAS devoted to Hodge theory and o-minimality. I mention however that the subject has seen spectacular developments precisely in the last 10 years, particularly around Klingler who was a long term participant of our program.
3) **Hyper-Kähler geometry and Lagrangian fibrations.** Hyper-Kähler geometry is a higher dimensional generalization of the theory of $K3$ surfaces, at least from the viewpoint of Hodge theory. From the viewpoint of geometry however, there are many open questions that are easy in the K3 surface case. For example, the existence of a Lagrangian fibration on a K3 surface when it admits one nef isotropic element in its Néron-Severi group is a triviality. The "geography" of hyper-Kähler manifolds, for example what can be their Chern numbers, is completely open in higher dimension. I spent a lot of time this year discussing with Laza and Saccà (who spent the whole year at IAS) on a project of compactifying the intermediate Jacobian fibration of a cubic fourfold into a hyper-Kähler manifold giving a family of deformations of the varieties of OG10-type (constructed by O'Grady starting from K3 surfaces), and we finally achieved this the following year. The subject of Lagrangian fibrations, their compactifications, their twists, their topology, their birational properties… has exploded since in several directions, culminating recently with major recent boundedness results.