

COMPLEX GEOMETRY

Organizers:

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URL: <https://sites.google.com/view/isaac2019-complex-geometry/home>

Aims: The main topics will be Higgs bundles and, more generally, augmented principal bundles. These are objects of complex algebraic geometry with links to other areas, such as arithmetic and mathematical physics. In the form of gauge theory, analysis plays a major role in the investigation of these objects. In fact, the so-called Kobayashi-Hitchin correspondence relates an algebro-geometric moduli space for these objects to a gauge theoretically defined one. The proof of the correspondence is highly analytical. The correspondence and its proof played a major role, e.g., in the work of Sir Simon Donaldson on invariants of differentiable four-manifolds for which he was awarded the fields medal.