VBAC 2019

GIT, wall-crossings and moduli spaces

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Speakers

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Frances Kirwan, University of Oxford
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Abstract

The construction and study of moduli spaces has been of central importance in algebraic geometry for more than 50 years and can be traced back to the mid 19th century with Riemann´s initial study of the moduli space of curves. A key element in this study was the introduction of geometric invariant theory (GIT) by Mumford in the 1960s, thus introducing the concept of stability and providing a general method for the algebraic geometric construction of moduli spaces. Both GIT and the study of moduli spaces have developed ever since. Moduli spaces depend on choices of ample line bundle and their variation with respect to these choices leads naturally to the idea of wall-crossings, a concept which was developed initially by Kontsevich, and then by the work of many people became a major research area.

The three themes of this workshop are thus intimately related and constitute today an extremely active area of research with strong ties to current very active areas of mathematical physics, such as the study of various gauge theories and string theory.

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