



Berlin
Mathematical
School

BMS Friday Colloquium

Friday 13 May 2016 at 14:15

Tea & Cookies starting at 13:00

BMS Loft, Urania, An der Urania 17, 10787 Berlin

Enrico Arbarello

(U La Sapienza, Rome)

Enumerative Geometry, Intersection Theory, and Moduli Spaces

At the core of enumerative geometry is the quest to compute the number of all possible geometric configurations of a given type. As an example, among the 387 propositions of his treatise on conics, Apollonius of Perga (262 B. C.) proves that there are eight circles tangent to three given ones. Enumerative geometry is deeply intertwined with intersection theory and with the theory of moduli spaces (even in Apollonius' example).

In his talk, Arbarello will follow the development of enumerative geometry starting from Euclid, going through Piero della Francesca's and Dürer's projective vision, Cardano's complex numbers, Descartes' analytic methods, Schubert's computational strength, and Riemann's revolution. Arbarello will then come to the burst of methods arising from theoretical and mathematical physics; to the unexpected links between enumerative geometry and the theory of Korteweg–de Vries equations; to the drastic change of viewpoint by Gromov and Witten; and to the remarkable results by Kontsevich, Okounkov and Pandharipande.

Enrico Arbarello is an Italian professor of geometry at Sapienza Università di Roma. He is well known both for his fundamental contributions to the geometry and topology of the moduli space of curves, and as one of the authors of the "Geometry of Algebraic Curves" books, which have shaped this field for decades. Arbarello was an invited speaker at the 1986 ICM and was a member of the Fields Medal Committee in 2006. He is a member of the Italian Accademia dei Lincei, and the Academia Europaea. He is also a fellow of the AMS.



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