



The University of Geneva and EPF Lausanne invite you to the

Journée Georges de Rham 2018

Wednesday, March 7



Sciences II Auditoire P. F. Tingry – A150
(30 quai Ernest-Ansermet, Genève)



15:00 - 16:00

Francis Brown

(Mathematical Institute, University of Oxford)



De Rham Integration

Among G. de Rham's most celebrated contributions is the theorem which states that integration of differential forms along chains defines a pairing between the cohomology theory which bears his name and singular cohomology. For algebraic varieties, this theorem was subsequently refined by Grothendieck, who defined a version of de Rham cohomology constructed out of algebraic differential forms. It is the starting point for the theory of periods.

After reviewing this material, I will explain why it is natural in this context to consider a kind of 'integration' of differential forms paired, not with chains, but with (duals of) differential forms. This leads to new classes of numbers and functions with several applications ranging from number theory to theoretical physics.

16:00 - 16:30

Coffee Break

16:30 - 17:30

Nigel Hitchin

(Mathematical Institute, University of Oxford)



Integrable systems and algebraic geometry

Completely integrable Hamiltonian systems are an important concept in many areas of mathematics and include classical examples like the equations for a spinning top or the geodesics on an ellipsoid. A huge range of examples comes from considering the algebraic geometry of moduli spaces of Higgs bundles on a curve. The talk will focus on the geometry of the singular locus for these systems and how certain constructions in algebraic geometry such as blow-ups and Hecke correspondences help to understand the structure of this locus.

17:30 - 18:30

Reception

