

SOPHUS LIE DAYS I

Henri Moscovici, Ohio State University

Lecture I – Continuous Symmetries: from Lie groups to Hopf algebras of transformations

- Thursday, September 23 @ 4:25 PM in 406 Malott Hall •

Accessible to undergraduate and graduate students.

We shall illustrate the evolution of the notion of symmetry in differential geometry, from Lie (pseudo)groups to Hopf algebras of transformations, by discussing the solutions of the Schwarzian equation: $Sf = 0$, where

$$Sf = f''' / f' - \frac{3}{2} (f'' / f')^2$$

Lecture II – Hopf Algebras and Lie Pseudogroups

- Friday, September 24 @ 3:30 PM in 406 Malott Hall •

The local symmetries of the classical geometric structures form the (primitive) Lie pseudogroups classified by E. Cartan. By linearization, to each such pseudogroup it corresponds a Lie algebra of formal vector fields, whose (Gelfand-Fuks) cohomology encapsulates the universal characteristic classes of foliations with corresponding transverse holonomy. The fact that the very same classes are responsible for the computation of indices of transversely elliptic operators on general foliations was revealed in work of A. Connes and myself, but only after we constructed a Hopf algebra whose cyclic cohomology turned out to deliver the very same classes in “readable” form. The theme of my talk will be a general construction, obtained in recent joint work with B. Rangipour, of such Hopf algebras of “transverse quantum symmetries” associated to primitive Lie pseudogroups.



Please join us Thursday, September 23 at 3:55 PM for refreshments in the Mathematics Department lounge (532 Malott Hall).