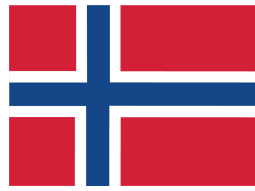


# NILS-ABEL-CM SEMINAR



Martes, 14 de octubre de 2014

10:00 h., Aula Gris 1 (ICMat, Campus de Cantoblanco)

**Mauricio Antonio Godoy Molina**

Universitetet i Bergen

Combinatorics of the BCH formula

## Resumen:

The Baker-Campbell-Hausdorff formula is a powerful tool that relates explicitly the Lie bracket on a Lie algebra and the product on an associated Lie group via an infinite series of brackets of increasing length. The formula can be seen as the correction that one needs to do when the identity  $e^{A+B} = e^A e^B$  does not hold.

In this talk I will explain a combinatorial approach to find the coefficients of this series proposed by Strichartz, which is obtained by cleverly solving a differential equation. Similar formulas were derived in different manner by other authors, and I will try to comment on these other approaches. One of the important observations of Strichartz that I will stress is that this formula can be applied to find good approximations of problems in sub-Riemannian geometry and control.