

# Séminaire de Probabilités et Statistiques

Mardi 19 décembre à 14h00

Laboratoire Dieudonné

Salle de réunion, 5<sup>e</sup> étage bâtiment Fizeau

**Claus Koestler**

(University College Cork, Ireland)

*Distributional symmetries and invariance principles from the  
viewpoint of algebraic homology*

A well-known distributional symmetry is exchangeability which states that the distribution of a sequence of random variables is invariant under permutation of these variables. The celebrated de Finetti theorem states that an exchangeable infinite sequence of random variables is conditionally independent and identically distributed. It was shown by Ryll-Nardzewski that exchangeability is actually equivalent to spreadability where the latter stipulates only invariance of the distribution when passing to a subsequence of the random variables. My talk will revisit these results, with the goal to show that spreadability is more fundamental than exchangeability from the viewpoint of algebraic homology. Actually spreadability can be seen to emerge from a covariant functor from the semi-simplicial category into the category of probability spaces. My talk will be on an introductory level and is based on joint work with Gwion Evans and Rolf Gohm.