

# Random Behaviour of Deterministic Systems

by

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### Abstract:

Throwing a coin is the paradigmatic example of a mechanical deterministic system whose outcome exhibits a random/chaotic behaviour indistinguishable from one where randomness is built-in. The geometric mechanism which is essential in the understanding of this « butterfly effect » was first discovered by Henri Poincaré in 1890 in his prize-winning memoir for King Oskar of Sweden's 60th birthday. On the other hand, the Kolmogorov-Arnold-Moser theory developed since the 1960's guarantees that regular/quasiperiodic behaviour is persistent under perturbations. To determine, even in the simplest systems such as mechanical systems with two degrees of freedom, whether random/chaotic or regular/quasiperiodic behaviour is prevalent is the major open problem in the modern theory of dynamical systems.



Date: November 5, 2008 (Wednesday)  
Time: 5:00pm  
Venue: Lecture Theatre 15  
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*This lecture is part of the  
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*All are Welcome*