



Centro de **Matemática**
Universidade do Porto

Dynamical Systems Seminar

Date. February 22, 14h30

Place. Room M031

Speaker. Jorge Freitas (FCUP & CMUP)

Title. Dichotomy for the extremal behaviour of chaotic systems

Abstract. We consider systems for which there exists decay of correlations against L^1 observables. Examples include expanding and piecewise expanding systems. For such systems we consider rare events consisting on the entrance into very small neighbourhoods of some chosen points z on the phase space. We will see that there is a dichotomy regarding the extremal behaviour of these systems, depending on whether the point z is periodic or not. Namely, we will see that if the point z is periodic then we have an Extremal Index (EI) equal to 1 (which means no clustering of rare events) and the point processes counting the occurrence of rare events converge to a standard Poisson process. On the other hand, if the point z is aperiodic we obtain an EI less than 1 (which means the occurrence of clustering) and the rare events point processes converge to a compound Poisson process.

Remark. Coffee with the speaker is served after the talk (15h30 - 16h00)