Dynamical Systems Seminar

Date. February 15, 14h30

Place. Room M031

Speaker. Ana Cristina Freitas (FEP & CMUP)

Title. Rare events for dynamical systems in the presence and absence of clustering

Abstract. We consider discrete time dynamical systems and show the link between Hitting Time Statistics (the distribution of the first time points land in asymptotically small sets) and Extreme Value Theory (distribution properties of the partial maximum of stochastic processes). This relation allows to study Hitting Time Statistics with tools from Extreme Value Theory and vice versa. We exploit the connection between these two approaches both in the absence and presence of clustering. Clustering means that the occurrence of rare events has a tendency to appear concentrated in time. The strength of the clustering is quantified by the Extremal Index, which takes values between 0 and 1. We associate the existence of an Extremal Index less than 1 to the occurrence of periodic phenomena.

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