ICTS Seminar

Title : Near-extreme events: Density, Copulas and beyond

Speaker : Anirban Chakraborti, Jawaharlal Nehru University, New Delhi

Date : Monday, July 1, 2019

Time : 11:30 AM

Venue : Chern Lecture Hall, ICTS Campus, Bangalore

Abstract : We would like to present study of the (near) extreme event statistics, which plays a very important role in the theory and practice of time series analysis. The reassembly of classical theoretical results in extreme value statistics is often undermined by non-stationarity and dependence between increments. Furthermore, the convergence to the limit distributions can be slow, requiring a huge amount of records to obtain significant statistics, and thus limiting its practical applications. Focusing, instead, on the closely related density of ''near-extremes'' – the distance between a record and the maximal value – can render the statistical methods to be more suitable in the practical applications and/or validations of models. We also review the ideas on temporal dependencies and recurrences in discrete time series. We revisit existing studies and redefine the relevant observables in the language of copulas (joint laws of the ranks). We propose that copulas provide an appropriate mathematical framework to study nonlinear time dependencies and related concepts— like recurrences and waiting times.