Speaker: E. ROLDAN (ICTP, Italy)

Title: FC Martingales: a football club of second laws of thermodynamics

Abstract: This talk will present fundamental results within the recent comprehensive review on the theory of martingales as applied to stochastic thermodynamics [1]. Particular emphasis will be given to tutorial aspects of martingales, and how can they be applied to nonequilibrium phenomena. I will focus on how martingale theorems can be applied successfully to derive a hierarchy "football club" of second laws that generalize results in stochastic thermodynamics obtained over the last decades. If time available, the talk will also refresh readers about the extension of stochastic thermodynamics to stopping-time fluctuations by employing results of martingale theory, to unveil key results applicable in biophysics, soft matter, and computation among other fields.

[1] E Roldan, I Neri, R Chetrite, et al., arXiv 2210.09983 (2022)