

Abstract for GR-TR Conference on Statistical Mechanics and Dynamical Systems

Topic: Dynamical Systems

Preference: Poster

Unified scaling law in the coherent noise model

A. Celikoglu^{1*}, U. Tirnakli^{1,2}

¹ Department of Physics, Faculty of Science, Ege University, 35100 Izmir, Turkey

² Division of Statistical Mechanics and Complexity, Institute of Theoretical and Applied Physics (ITAP) Kaygiseki Mevkii, 48740 Turunc, Mugla, Turkey

* Electronic Address: ahmet.celikoglu@ege.edu.tr

The waiting time distribution between successive events and the unified scaling law are studied using the Coherent Noise Model. It is shown that, although this model generates uncorrelated event sizes and does not exhibit criticality, it still provides the unified scaling law. We argue the role of characteristic kink observed in the unified scaling law and the meaning of the parameter C used to fix the peak of the kink to unity. Our results indicate that the parameter C is indeed a physical quantity localizing the end of the linear tendency in the scaling law, which corresponds to the completion of the dominance of correlated events in time.