AKSOE 11: Social-, Information-, and Production Networks II

Time: Thursday 9:30–10:15 Location: H8

Invited Talk AKSOE 11.1 Thu 9:30 H8

Ecology of firms in a financial market — •Rosario Nunzio Mantegna[1], Fabrizio Lillo[1,2], Esteban Moro[3], and Gabriella Vaglica[1] — [1]Dipartimento di Fisica e Tecnologie Relative, Università di Palermo, Palermo I-90128, Italy — [2]Santa Fe Institute, 1399 Hyde Park, Santa Fe, NM 87501, USA — [3]Departamento de Matematicas, Universidad Carlos III de Madrid, E-28911, Leganes, Spain

The understanding of complex systems is an important scientific challenge. Despite many agent-based models have been proposed to explain the emergence of market properties, only in few cases the available data permits an empirical investigation of agents strategies. Here we present a comprehensive study of the Spanish Stock Exchange (BME) during the time period 2001-2004. The BME is special since is a complete transparent market in which the identities of the financial firms participating in the trading are publicly released. Our study shows that financial firms are self-organized in a complex ecology in which different degrees of specialization are seen. Specifically, few large firms push the price in a given direction demanding liquidity to the market on a long time scale, whereas many heterogeneous firms provide liquidity on a short time by reverting the direction of the price. Our results allow to build one of the first empirically grounded agent based models of financial markets.