Symposium Scientometric Maps and Dynamic Models of Science and Scientific Collaboration Networks (SYSM)

jointly organized by
Physics of Socio-Economic Systems Division (SOE),
Dynamics and Statistical Physics Division (DY),
Biological Physics Division (BP) and
Working Group young DPG (AGjDPG)

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Scientometrics is collecting quantitative data of scientific publications. Following approaches by Börner et al., linkage and text similarity measures can be utilized to approximately embed publications (and topics, journals, authors) in a metric space, and already two dimensions allow for a vizualization of scientific discipines and their hierarchical structure of subdisciplines. How does this structure emerge dynamically? How can the emergence of the current structure of scientific disciplines be explained? Which mechanisms influence interdisciplinarity and originality? In which parameter regimes are rich-get-richer mechanisms leading to sole continuation of old topics? This symposium provides a dynamical systems perspective on the scientific process, and outlines data-driven and predictive methods by which the influence of research, review and funding policies as well as individual publication strategies can be studied.

Overview of Invited Talks and Sessions

(Lecture room H1)

Invited Talks

SYSM 1.1	Thu	9:30–10:00	H1	**Science Forecasts: Measuring, Predicting, and Communicating Scientific Developments** — •Katy Börner
SYSM 1.2	Thu	10:00–10:30	H1	**Mapping science with variable-order Markov dynamics reveal overlapping fields and multidisciplinary journals** — •Martin Rosvall
SYSM 1.3	Thu	10:30–11:00	H1	**Network algorithms for reputation and quality in scholarly data** — •Matúš Medo, Manuel Mariani, Yi-Cheng Zhang
SYSM 1.4	Thu	11:15–11:45	H1	**Modeling scientific networks in social media** — •Cassidy Sugimoto
SYSM 1.5	Thu	11:45–12:15	H1	**Modeling scientific collaboration across multiple scales: from individuals to Europe** — •Alexander Petersen

Sessions

SYSM 1.1–1.5	Thu	9:30–12:15	H1	**Scientometric Maps and Models of Science and Scientific Collaboration Networks**