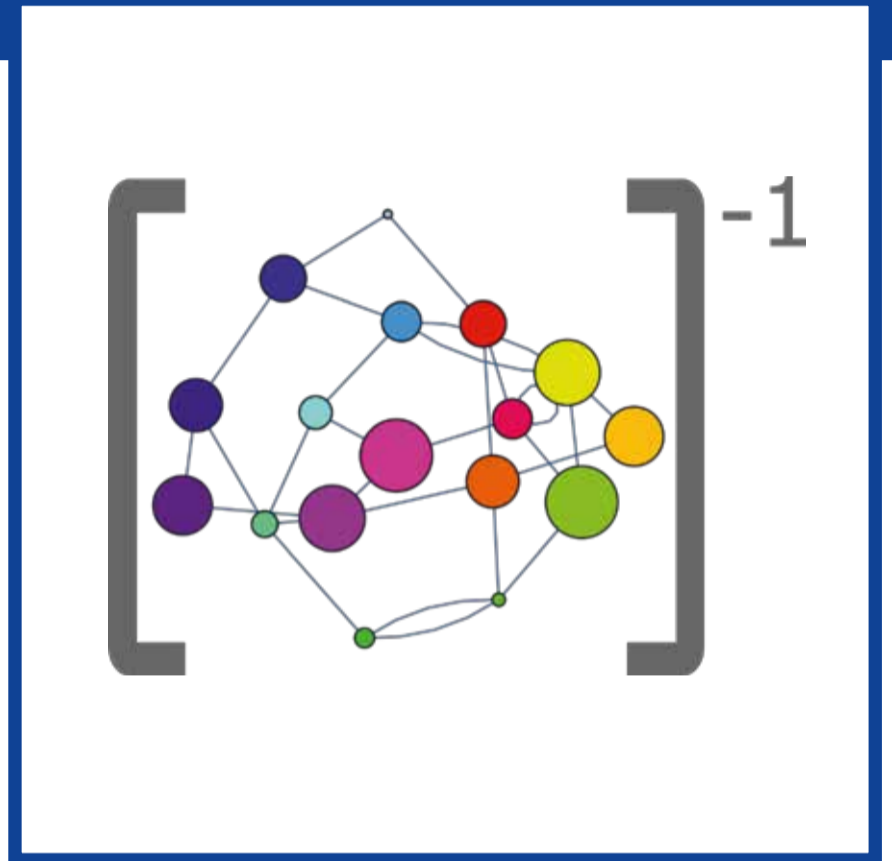




Inverse Network Dynamics - Network structure and function from nonlinear dynamics and time series

International Seminar & Workshop 22 - 31 July 2020

In contrast to the forward procedure of analyzing complex systems, we consider inverse problems: Topical questions include how to *infer* structure and models from multi-dimensional time series and how to *design* networks for a desired function. Progress relies on the rapidly increasing availability of time series data and novel tools for analyzing large data sets. The event shall bridge theory and method development with applications from biology and physics to computer science and engineering.



Topics:

- multi-dimensional time series and data analytics
- structural vs. statistical inference
- probabilistic models
- causal inference
- compressed sensing
- networks in biology, biomedical and engineering applications
- bio-engineering and synthetic biology
- unreliable, subsampled and heterogeneous data
- model reduction
- network design
- machine learning and dynamical systems
- computational and algorithmic challenges

Invited speakers:

(* to be confirmed)
 P. Ashwin (UK)*
 B. Barzel (IL)
 S. Bialonski (DE)
 S. Boccaletti (IT)
 J. Casadiego (ES)
 E. Ching (HK)
 C. Grebogi (UK)*
 S. Grün (DE)
 H. Kantz (DE)
 N. Karaiskos (DE)
 L. Kocarev (MK)*
 B. Lünsmann (DE)
 E. Ott (US)
 U. Parlitz (DE)
 A. Pikovsky (DE)
 V. Priesemann (DE)
 M. Rosenblum (DE)
 J. Runge (DE)

B. Schelter (UK)
 E. Schneidman (IL)
 S. Shai (US)
 L. Tupikina (FR)
 C. Uhler (US)

Scientific coordinators:

Klaus Lehnertz
 Bonn, Germany

Mor Nitzan
 Cambridge, USA

Marc Timme
 Dresden, Germany

Organisation:

Maria Voigt
 MPIPKS Dresden

Applications received before 15th March 2020 are considered preferentially.

Applications are welcome and should be made by using the application form on the event's web page. The number of attendees is limited. The registration fee for the international seminar and workshop is 140 Euro and should be paid by all participants. Costs for accommodation and meals will be covered by the Max Planck Institute. Limited funding is available to partially cover travel expenses.

For further information please contact:

Visitors Program – Maria Voigt
 MPI for the Physics of Complex Systems
 Nöthnitzer Str. 38, D-01187 Dresden
 Tel: +49-351-871-1934
 Fax: +49-351-871-2199
 netdat20@pks.mpg.de
 www.pks.mpg.de/netdat20/