

Analysis and Control of Large Scale Complex Networks



ERC [Scale-FreeBack](#), Workshop, 10-11 Sept 2018, Grenoble France



Scientific Committee: Carlos Canudas-de-Wit (CNRS), Paolo Frasca (CNRS), Maria Laura Delle Monache (INRIA), Giacomo Casadei (CNRS)
Local organization: Leon Lydie (CNRS), Myriam Etienne (INRIA)
Location: A small castle near to Grenoble, Château la Commanderie (<http://www.commanderie.fr/?lang=en>)
Registration: [here](#)

The workshop, organized within the context of the ERC-AdG Scale-FreeBack project (scale-freeback.eu), aims to investigate problems of modelling, estimation and control of large-scale dynamical systems. Large-scale systems embed intrinsic issues in terms of computational complexity, which make their analysis and the definition of control architecture difficult.

Topic 1: Modelling & Model Aggregation

09h00 - 09h30: Carlos Canudas-de-Wit ERC Scale-FreeBack Goals & Objectives,

09h30 - 10h00: Nicolas Martin, Carlos Canudas De Wit, Paolo Frasca. ERC Scale-FreeBack: "Large-scale network reduction towards scale-free structure"

10h00 - 10h30: Coffee Break

10h30 - 11h30: Jacquélien Scherpen (Groningen Uni.) "Structure preserving order reduction of networked linear systems"

11h30 - 12h30: Ming Cao (Groningen University) "Modeling and control of evolutionary network dynamics"

12h30 - 14h00: Lunch Break

Topic 2: Estimation & Observation

14h00 - 15h00: Didier Georges (Gipsa-Lab Grenoble INP), "Optimal sensor location for large-scale dynamical systems"

15h00 - 16h00: Francesco Viti (Luxembourg University), "Assessing partial observability in sensor location problems at large-scale networks"

16h00 - 16h30: Coffee Break

16h30 - 17h00: Muhammad Niazi, Carlos Canudas De Wit, Alain Kibangou. ERC Scale-FreeBack: "Average State Estimation of Multiple clusters in Large-Scale Network Systems".

19h30 - 22h00: Social Dinner at the Workshop Venue

Topic 3: Control Design

09h30 - 10h30: Anders Rantzer (Lund University), "When are optimal controllers scalable?"

10h30 - 11h00: Coffee Break

11h00 - 12h00: Rodolphe Sepulchre (Cambridge University), "Ultrasensitivity and robust control across scales"

12h00 - 12h30: Giacomo Casadei, Carlos Canudas De Wit, Sandro Zampieri. ERC Scale-FreeBack: "Scale Free Controllability of Large-Scale Networks: an Output Controllability Approach".

12h30 - 14h30: Lunch Break and demonstration/posters on Traffic Lab, modelling and Estimation. Vadim Bertrand, Martin Rodriguez, Stephane Mollier

14h30 - 15h30: Claudio De Persis (Groningen University). "Control of flow Networks"

15h30 - 16h30: Murat Arcak (Berkeley University). "Network partitioning and aggregation for hierarchical control"



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