



Thursday **December 05, 2019** at 14:30

Politecnico di Torino, DISMA, Aula Buzano (third floor)

## Leonardo MASSAI

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### Contagion in financial networks

Prof. Giacomo Como introduces the seminar.

#### Abstract

We undertake a fundamental study of a model, originally proposed in the context of networked financial institutions interconnected by obligations. The model describes the equilibria of the network as the solutions of a fixed point linear equation with a saturation nonlinearity. It is one of the simplest continuous models where shock propagation phenomena and cascading failure effects occur. In this paper, we present explicit expressions for the equilibria, we propose conditions for uniqueness that encompass the one present in the literature, and finally, we study jump discontinuities of the equilibria when parameters cross certain critical thresholds. This is of particular interest in the financial context, as it shows that even small shocks affecting the values of the assets of few nodes, can trigger catastrophic aggregated loss to the system and cause the default of several agents.

#### Biography

Leonardo Massai obtained his Master's Degree in 2015 in Mathematical Engineering with full marks cum laude at Politecnico di Torino. From 2015 to 2017, he worked as a research fellow for the Politecnico di Torino on a project supported by the Italian leader brokerage firm Directa S.I.M.p.A. The activities for the brokerage firm focused on financial risk measures and margining control. He is currently a PhD student at Politecnico di Torino under the supervision Fabio Fagnani and of Giacomo Como. His research is on financial networks, dynamics over networks and control problems.