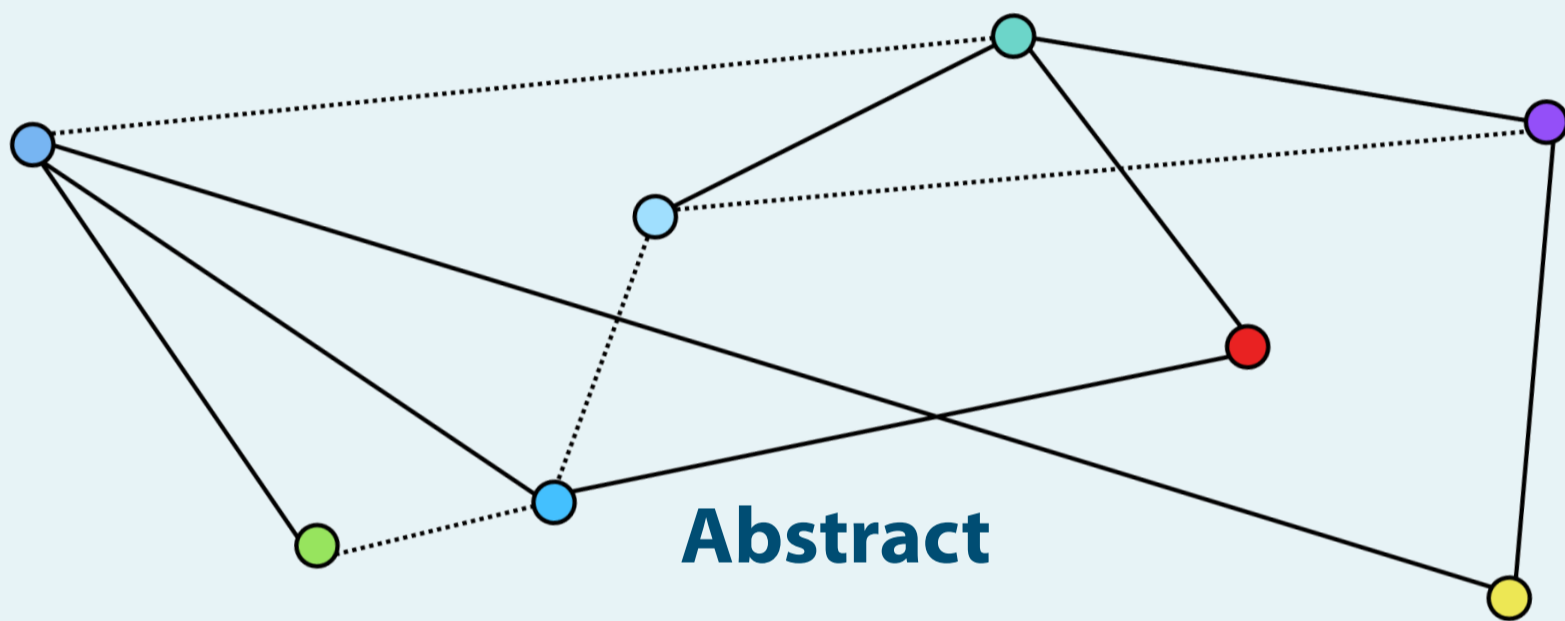


# Measuring systemic risks with correlated networks

**Paolo Giudici**

***Department of Economics and Management  
University of Pavia***



In the talk we consider the issue of accurately measuring systemic risks, that may endanger financial stability and should, therefore, appropriately detected and, possibly, mitigated, in an early warning perspective. In particular, we consider both systemic risks that arise from single financial institutions (in a microprudential perspective) and those arising from aggregate sectors of the economy (in a macroprudential perspective). We propose, in both contexts, to employ appropriate correlation network models, based on graphical Markov models, and estimated from big data analysis of different sources of information, such as financial ratios, market data and social networks data. We apply our

methods to data that concern selected Euro area countries, using aggregate interest rate statistics, in the macroeconomic setting, and financial ratios/market prices/twitter data of a group of publicly listed financial institutions. The main relevance of our findings is a novel measure of systemic risk, that can provide not only a degree of interconnectedness between institutions or sectors (as in available systemic risk models), but also a precise quantification of how much a stress on a single entity (as measured for example, by a change in its default probability) is transmitted to others.

**Thursday 10<sup>th</sup> March  
from 1 pm to 2 pm**

**Seminar room, 3rd floor, building D1  
Campus Luigi Einaudi  
Lungo Dora Siena 100/A, Turin**