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Direct contagion in large portfolios. Modeling aspects.

Abstract:
In this talk I will present some results related to models for direct contagion with applications to credit risk. In the context of credit risk -both for management purposes and the pricing of complex credit
derivatives- it turns out that one of the main ingredient is the variable L(t) measuring the losses related to a (possibly large) credit portfolio.

I will discuss a new methodology that links L(t) to suitable stochastic processes and their empirical measures. These processes are characterized by a complex spatial structure, heterogeneity and direct contagion. Relying on these techniques, we let the modeling of portfolio losses be enriched
with the complex structure of the underlying processes. All the theoretical results are then concerned with the proof of suitable limit theorems (laws of large numbers and central limit theorems).