

**The Working Group on Risk - CREAR, with the support of the IDS dpt, the group BFA (SFdS) & Institut des Actuaire (IA) , has the pleasure to invite you to the Seminar by:**

**Prof. Jean-Philippe BOUCHAUD**  
**Chairman at Capital Fund Management &**  
**Professor at Ecole Polytechnique**  
**Paris, France**

## **The Endogenous Dynamics of Markets: Price Impact and Feedback Loops and Instabilities**

We review the evidence that the erratic dynamics of markets is to a large extent of endogenous origin, i.e. determined by the trading activity itself and not due to the rational processing of exogenous news. In order to understand why and how prices move, the joint fluctuations of order flow and liquidity - and the way these impact prices - become the key ingredients. Impact is necessary for private information to be reflected in prices, but by the same token, random fluctuations in order flow necessarily contribute to the volatility of markets. Our thesis is that the latter contribution is in fact dominant, resulting in a decoupling between prices and fundamental values, at least on short to medium time scales. We argue that markets operate in a regime of vanishing revealed liquidity, but large latent liquidity, which would explain their hyper-sensitivity to fluctuations. More precisely, we identify a dangerous feedback loop between bid-ask spread and volatility that may lead to micro-liquidity crises and price jumps. We discuss several other unstable feedback loops that should be relevant to account for market crises: imitation, unwarranted quantitative models, pro-cyclical regulation, etc.



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**Prof. Jean-Philippe Bouchaud** (PhD in Physics, Ecole Normale Supérieure in Paris) started his career as a physicist (CNRS until 1992, Cambridge, CEA-Saclay). He became interested in economics and theoretical finance in 1991. His work in finance includes extreme risk models, agent based simulations, market microstructure and price formation. He has been very critical about the standard concepts and models used in economics and in the financial industry (market efficiency, Black-Scholes models, etc.). He founded the company Science & Finance in 1994 that merged with Capital Fund Management (CFM) in 2000. He is now the President and Head of Research at CFM, and Professor at Ecole Polytechnique since 2008. He was awarded the IBM young scientist prize in 1990 and the C.N.R.S. Silver Medal in 1996. He has published over 300 scientific papers and several books in physics and in finance.



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