

Workshop II: The Mathematics of High Frequency Financial Markets: Limit Order Books, Frictions, Optimal Execution and Program Trading

Monday April 13, 2015

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:10 **Charles Lehalle** (Capital Fund Management)
Market Microstructure in Practice: Overview
- 9:10–10:20 **Charles Lehalle** (Capital Fund Management)
Market Microstructure in Practice: Why and how to trade optimally in a fragmented market - Part I
- 10:20–10:40 *Break*
- 10:40–12:00 **Charles Lehalle** (Capital Fund Management)
Market Microstructure in Practice: Why and how to trade optimally in a fragmented market - Part II
- 12:00–1:30 *Lunch (on your own)*
- 1:30–2:50 **Charles Lehalle** (Capital Fund Management)
Market Microstructure in Practice: Why and how to trade optimally in a fragmented market - Part III
- 3:00–3:30 *Break*
- 3:30–4:20 **Aurelien Alfonsi** (École Nationale des Ponts-et-Chaussées)
Dynamic optimal execution in a mixed-market-impact Hawkes price model
- 4:30–6:00 *Reception (Location: IPAM Lobby)*

Tuesday April 14, 2015

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Xin Guo** (University of California, Berkeley (UC Berkeley))
Dynamics of order positions and related queues in limit order books
- 10:00–10:50 **Frederic Abergel** (École Centrale de Paris)
Mathematical properties of limit order books modelled by Hawkes processes
- 11:00–11:30 *Break*

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- 11:30–12:20 **Sophie Laruelle** (Université Paris-Est Créteil (UPEC))
Optimal Execution and Sochastic Approximation : Learning by Trading
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Alvaro Cartea** (University College London)
A Closed-Form Execution Strategy to Target VWAP
- 3:00–3:50 **Juan (Julie) Wu** (University of Georgia)
International Evidence on Algorithmic Trading
- 4:00–4:30 *Break*
- 4:30–5:20 **Michael Ludkovski** (University of California, Santa Barbara (UC Santa Barbara))
Connecting Order Flow with Execution Costs

Wednesday April 15, 2015

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Sebastian Jaimungal** (University of Toronto)
Mean-Field Game Strategies for a Major-Minor Agent Optimal Execution Problem
- 10:00–10:50 **Austin Gerig** (U.S. Securities and Exchange Commission)
Too Fast or Too Slow? Determining the Optimal Speed of Financial Markets
- 11:00–11:30 *Break*
- 11:30–12:20 **Robert Almgren** (Quantitative Brokers and NYU)
Using a simulator to develop futures and bond algorithms
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Huyên Pham** (Université de Paris VII (Denis Diderot))
An optimal trading problem in intraday electricity markets
- 3:00–3:50 **Jianfeng Zhang** (University of Southern California (USC))
A dynamic approach for some time inconsistent problems
- 4:00–4:30 *Break*
- 4:30–5:20 **Charles Lehalle** (Capital Fund Management)
Q & A Session

Thursday April 16, 2015

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Mathieu Rosenbaum** (Université de Paris VI (Pierre et Marie Curie))
Volatility is rough
- 10:00–10:50 **Sasha Stoikov** (Cornell University)
Estimating the cost of latency in trading
- 11:00–11:30 *Break*
- 11:30–12:20 **Sergey Nadtochiy** (University of Michigan)
Modeling Limit Order Book via Mean Field Games
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:20 **Ioane Muni Toke** (University of New Caledonia)
Stationary distributions in Poisson limit order book models
- 2:30–2:50 **Maria Alessandra Crisafi** (University College London)
Dark-pool perspective of optimal market making
- 3:00–3:30 *Break*
- 3:30–3:50 **Eyal Neuman** (Hong Kong University of Science and Technology)
Optimal Portfolio Liquidation in Target Zone Models and Catalytic Superprocesses
- 4:00–4:20 **Dmytro Karabash**
Hawkes-type HFT implies price impact

Friday April 17, 2015

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **René Carmona** (Princeton University)
Trading Frictions in High Frequency Markets
- 10:00–10:50 **Alexander Schied** (Universität Mannheim)
A hot-potato game under transient price impact
- 11:00–11:30 *Break*
- 11:30–12:20 **Jin Ma** (University of Southern California (USC))
Order Book Model and Related Optimal Liquidation Problem
- 12:30 *Conclusion*

