€ABCN
Euro Area Business Cycle Network

UNIVERSITY OF MANNHEIM

Euro Area Business Cycle Network Training School

"Heterogeneous Agent Models in Continuous Time with Monetary Policy Applications"

By

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Venue: Room: EO 150, University of Mannheim, Schloss, D-68131 Mannheim

4-6 June 2018

Schedule

MONDAY 4 JUNE

08.15-09.00 **Registration and Welcome Coffee**

09.00-10.30 **Session 1:** Introduction and Overview, Hamilton-Jacobi-Bellman (HJB) equations

10.30-11.00 **Coffee break**

11.00-12.30 **Session 2:** numerical solution of HJB equation, continuous-time stochastic processes, Kolmogorov Forward (KF) equations

12.30-14.00 **Lunch**

14.00-15.30 **Tutorial 1:** derivation of HJB equation from discrete-time Bellman equation, Matlab codes for the numerical solution of HJB and KF equations

TUESDAY 5 JUNE

09.00-10.30 **Session 3:** Continuous-time version of workhorse heterogeneous-agent (Achdou et al)

10.30-11.00 **Coffee break**

11.00-12.30 **Session 4:** HANK: Heterogeneous Agent New Keynesian models (Kaplan-Moll-Violante)

12.30-14.00 **Lunch**

14.00-15.30 **Tutorial 2:** Newton method for transition dynamics and MIT shocks, numerical solution of advanced problems (e.g. non-convexities, stopping time problems, multiple assets)

20.00 Dinner

WEDNESDAY 6 JUNE

09.00-10.30 **Session 5:** Perturbation method for heterogeneous-agent models with aggregate shocks (Ahn-Kaplan-Moll-Winberry-Wolf, continuous-time Reiter method)

10.30-11.00 **Coffee break**

11.00-12.30 **Session 6:** Application to one-asset HANK model, model reduction

12.30-14.00 **Lunch**

14.00-15.30 **Tutorial 3:** Automatic differentiation, Bayesian estimation, discrete-time Reiter method