Otto-Friedrich-Universität Bamberg

WEHIA 2024

27th Annual Workshop on Economics with Heterogeneous Interacting Agents

July 8-12, 2024
University of Bamberg, GERMANY

Organizing Committee

Christian Proaño	Mishael Milaković	Frank Westerhoff
Naira Kotb	Philipp Mundt	Noemi Schmitt

Otto-Friedrich-Universität Bamberg

Conference venue

The conference takes place at Bistumshaus St. Otto, Heinrichsdamm 32. The venue is close to the park "Hain" and is easily accessible from Bamberg's historical old town. From the central bus station, you can take bus 930 to "P+R Heinrichsdamm", bus 909 to "Hain" or bus 918 to "Bug/Pettstadt", stop at "P+R Heinrichsdamm". It takes 15-20 minutes to walk to the conference venue from the city center at a moderate pace. All conference rooms are accessible, there is an elevator to access all levels.

Registration

The registration desk will be located in the foyer next to the main entrance. It will be open from 08:00am on July 9, 2024. Once registered, you will be able to participate in all sessions, coffee breaks, and meals during WEHIA (including welcome reception and social dinner). Your name tag will be required for all meals.

Information for speakers

Parallel sessions last 75 minutes and typically comprise three talks. Each presenter has approximately 20 minutes for the presentation and 5 minutes for discussion. To ensure the smooth proceeding of the conference, please start and finish the sessions on time.

The last presenter of each session serves as the session chair. Chairs are invited to come to the room 10 minutes prior to the start of the session. They introduce the topic and the speakers, make sure that the time rules are followed and guide the general discussion following the presentation (also providing 10 and 5 minutes reminders).

All conference rooms are equipped with a computer with USB ports, internet connection, Microsoft Office, Adobe Acrobat Reader, a presenter, and a projector. Please use these facilities for your presentation and bring along your slides as a PDF file on a USB memory device. Please arrive 10 minutes prior to the start of the session to upload your presentation to the computer before the session starts.

Social events

- July 9: Welcome reception at the conference venue, terrace/cafeteria.
- July 10: Social dinner at restaurant Hoffmanns/Harmoniesäle, Schillerplatz 7. Note that no transportation is arranged for this event as it is at walking distance from the conference venue (15 minutes) and the city center.

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Wifi

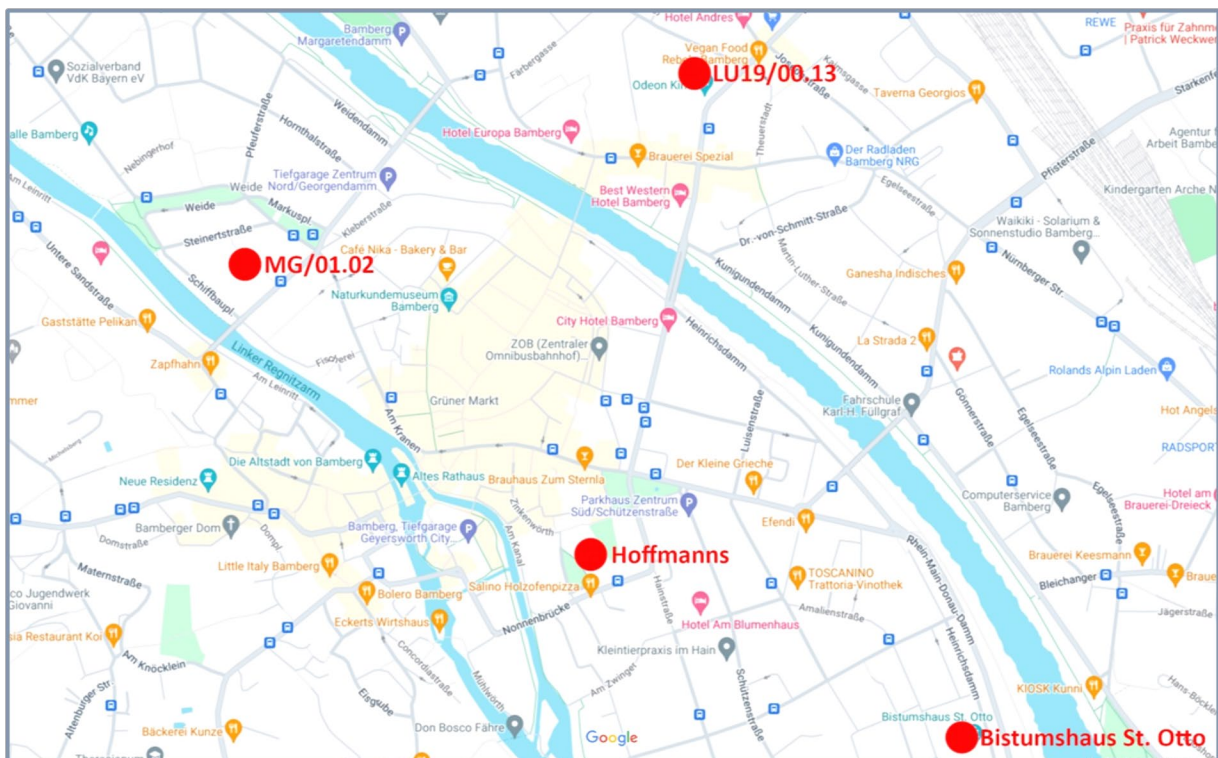Hotspot St. Otto
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Working space

Gruppenraum 1 can be used as a working space throughout the entire conference.

PhD courses

The following courses are open to all interested conference participants:

- Course 1 (July 8): "Behavioral expectations and climate-economy modeling" by Roberta Terranova, Luitpoldstraße 19, LU19/00.13.
- Course 2 (July 11-12): "Introduction to agent-based modeling, networks, and applications to the Covid-19 pandemic and the net-zero transition" by Maria del Rio Chanona, Markusstraße 8a, MG1/01.02.

CONFERENCE PROGRAM (last update: July 2)

Time	Monday, July 8			
10:00am – 6:00pm *Room*	PhD course: "Behavioral expectations and climate-economy modeling" by ROBERTA TERRANOVA *LU19/00.13*			
Time	**Tuesday, July 9**			
8:00am – 8:55am	Registration			
8:55am – 9:00am *Room*	Opening remarks *Festsaal*			
9:00am – 10:00am *Room*	Keynote: "Why we should study supply chain networks" by STEFAN THURNER *Festsaal*			
10:00am – 10:30am	Coffee break			
10:30am – 11:45am *Room*	A1: Green economics *Festsaal*	A2: Firm dynamics *Seminarraum 1*	A3: Financial market dynamics 1 *Seminarraum 2*	A4: Wealth and inequality *Saal PS/Großer Saal*
11:45am – 1:15pm	Lunch			
1:15pm – 2:30pm *Room*	B1: Switching dynamics and financial markets *Festsaal*	B2: Climate change *Seminarraum 1*	B3: Finance and networks *Seminarraum 2*	B4: Industry dynamics and competition *Saal PS/Großer Saal*
2:30pm – 3:00pm	Coffee break			
3:00pm – 4:15pm *Room*	C1: Estimation 1 *Festsaal*	C2: Environmental economics *Seminarraum 1*	C3: Industrial economics *Seminarraum 2*	C4: Growth *Saal PS/Großer Saal*
4:20pm – 4:35pm *Room*	ESHIA announcements *Festsaal*			
4:35pm – 6:00pm	Reception (conference venue)			
Time	**Wednesday, July 10**			
9:00am – 10:00am *Room*	Keynote: "Monetary exchange in the laboratory" by DANIELA PUZZELLO *Festsaal*			
10:00am – 10:30am	Coffee break			
10:30am – 11:45am *Room*	D1: Experiments *Festsaal*	D2: Business cycles *Seminarraum 1*	D3: Green transition *Seminarraum 2*	D4: Empirical economics *Saal PS/Großer Saal*
11:45am – 1:15pm	Lunch			
1:15pm – 2:30pm *Room*	E1: Expectations and forecasting *Festsaal*	E2: Monetary policy *Seminarraum 1*	E3: Learning and rationality *Seminarraum 2*	E4: Climate policies *Saal PS/Großer Saal*
2:30pm – 3:00pm	Coffee break			
3:00pm – 4:15pm *Room*	F1: Complexity and nonlinear dynamics *Festsaal*	F2: Large-scale ABMs *Seminarraum 1*	F3: ABM and finance *Seminarraum 2*	YSI: Exploring monetary policy through heterogeneous agent models *Saal PS/Großer Saal*
7:00pm – 23:00pm	Social dinner (Hoffmanns, Schillerplatz 7)			
Time	**Thursday, July 11**			
8:55am – 9:00am *Room*	Closing remarks *Festsaal*			
9:00am – 10:00am *Room*	Keynote: "The only long-run growth trajectory is a green trajectory: results from the Dystopian Schumpeter meeting Keynes model" by ANDREA ROVENTINI *Festsaal*			
10:00am – 10:30am	Coffee break			
10:30am – 11:45am *Room*	G1: Financial market dynamics 2 *Festsaal*	G2: Macroeconomic dynamics *Seminarraum 1*	G3: Innovations *Seminarraum 2*	G4: Simulating economic dynamics *Saal PS/Großer Saal*
11:45am – 1:15pm	Lunch			
1:15pm – 2:30pm *Room*	H1: Financial market dynamics 3 *Festsaal*	H2: Inflation dynamics *Seminarraum 1*	H3: Estimation 2 *Seminarraum 2*	H4: Green technologies *Saal PS/Großer Saal*
4:00pm – 6:00pm *Room*	PhD course: "Introduction to agent-based modeling, networks, and applications to the Covid-19 pandemic and the net-zero transition" by MARIA DEL RIO CHANONA *MG1/01.02*			
Time	**Friday, July 12**			
10:00am – 6:00pm *Room*	PhD course: "Introduction to agent-based modeling, networks, and applications to the Covid-19 pandemic and the net-zero transition" by MARIA DEL RIO CHANONA *MG1/01.02*			

Tuesday, July 9 – Morning Parallel Sessions (10:30am – 11:45am)				
Session *Room*	A1: Green economics *Festsaal*	A2: Firm dynamics *Seminarraum 1*	A3: Financial market dynamics 1 *Seminarraum 2*	A4: Wealth and inequality *Saal PS/Großer Saal*
10:30am	Navigating electoral cycles and investment dynamics under climate policy uncertainty (Emanuele Campiglio, Francesco Lamperti, **Roberta Terranova**)	The dynamics of diversity on corporate boards (**Matthias Raddant**, Fariba Karimi)	Hush the rush: Short-selling bans in times of stress (**Armin Aminian**)	The effects of biased labor market expectations on consumption, wealth inequality, and welfare (Almut Balleer, Georg Duernecker, Susanne Forstner, **Johannes Goensch**)
10:55am	An educational approach to sustainability (**Laura Mazzarino**, Alessio Biondo)	Financial fragility, risk and competition (**Ilfan Oh**, Philipp Mundt)	Margin calls and fire sales in low growth scenarios: Analysis via an agent-based stock market model (**Anja Janischewski**, Torsten Heinrich)	The role of educational opportunities for inequality and social mobility: Insights from an agent-based model (**Hannah Engljaehringer**, Mauro Napoletano, Elisa Palagi, Andrea Roventini)
11:20am	The role of adjustment costs and transition risk in selecting green versus brown technologies: Insights from adaptive rational equilibrium dynamics (**Davide Radi**, Frank Westerhoff)	Entrepreneurial attachment (**Carolina Mattsson**)		Great layoff, great retirement and post-pandemic inflation (Guido Ascari, Jakob Grazzini, **Domenico Massaro**)
Tuesday, July 9 – Noon Parallel Sessions (1:15pm – 2:30pm)				
Session *Room*	B1: Switching dynamics and financial markets *Festsaal*	B2: Climate change *Seminarraum 1*	B3: Finance and networks *Seminarraum 2*	B4: Industry dynamics and competition *Saal PS/Großer Saal*
1:15pm	Contagious popular stories and boom-bust stock market dynamics: Some insight from a simple market entry model (**Sarah Mignot**, Frank Westerhoff)	A high resolution input-output model to assess the economic impact of floods (**Jlenia Di Noia**, Alessandro Caiani, Luigi Cesarini, Marcello Arosio, Beatrice Monteleone)	Rigorously reducible networks of heterogeneous agents in finance and macroeconomics (**Harbir Lamba**)	Price and industry dynamics with a dominant firm, a competitive fringe and endogenous entry and exit (**Domenico Colucci**, Vincenzo Valori)
1:40pm	Dividend and price expectations in a minimal multivariate heuristic switching model (**Simone Alfarano**, Eva Camacho-Cuena, Annarita Colasante, Alba Ruiz-Buforn)	The environmental implications of uncertainty and socioeconomic disparity: An agent-based model featuring endogenous climate policy (Fiona Borsetzky, **Dirk Kohlweyer**)	Network approach to volatility diffusion and forecasting in global financial markets (**Matteo Orlandini**, Sebastiano Zema, Mauro Napoletano, Giorgio Fagiolo)	Learning dynamics in a network of Cournot economies (**Sebastian Kreuzmair**)
2:05pm	Generalizing heterogeneous dynamic heuristic selection (**Giorgos Galanis**, Iraklis Kollias, Ioanis Leventidis, Joep Lustenhouwer)	The impact of extreme weather on climate belief polarisation (**Martina Maglicic**, Vitor Vasconcelos, Sara Constantino)	Public and private beliefs under disinformation in social networks (**Diana Riazi**, Giacomo Livan)	Strategic firm capacity and network effects: A computational model of R&D investment dynamics in the ICT industry (**Zhongli Wang**)

Tuesday, July 9 – Afternoon Parallel Sessions (3:00pm – 4:15pm)				
Session *Room*	C1: Estimation 1 *Festsaal*	C2: Environmental economics *Seminarraum 1*	C3: Industrial economics *Seminarraum 2*	C4: Growth *Saal PS/Großer Saal*
3:00pm	Lack of identification of parameters in a simple behavioral macroeconomic model (**Thomas Lux**)	Ecologically-mediated collective action in commons with tipping elements (**Wolfram Barfuss**, Jonathan Donges, Matthias Bethge)	Do innovations change when the world is in lockdown? (**Torsten Heinrich**, Jangho Yang)	Endogenous cycles and distribution dynamics in a neoclassical growth model with heterogeneous agents (**Soumya Datta**)
3:25pm	Down to bedrock. Auxiliary particle filter investigation of the fundamental value in the heuristic switching model (**Tomasz Makarewicz**, Frank Westerhoff)	Understanding agricultural market dynamics in times of crisis: the dynamic agent-based network model Agrimate (**Christian Otto**, Kilian Kuhla, Patryk Kubiczek)	Reversing entrepreneurial decline: Industrial policy experiments in an agent-based model (**Domenico Delli Gatti**, Roberta Terranova, Enrico Turco)	A network representation of neoclassical interactive economies (Michele Catalano, Siliva Faggian, **Andrea Teglio**)
3:50pm	Bayesian estimation of the heuristic switching model (Mikhail Anufriev, Cars Hommes, **Valentyn Panchenko**)	Understanding community resilience with focus on water resource by coupling human and natural systems (**Christopher Ruebeck**, Christa Kelleher, Hongxing Liu, Joy Zhou)	Knowledge as a production factor: An agent-based model for knowledge assimilation in organizations (**Andreas Psimopoulos**, Nikos Varsakelis)	Wealth taxation in a Schumpeterian agent-based model (**Yannick Oswald**, Patrick Mellacher)
Wednesday, July 10 – Morning Parallel Sessions (10:30am – 11:45am)				
Session *Room*	D1: Experiments *Festsaal*	D2: Business cycles *Seminarraum 1*	D3: Green transition *Seminarraum 2*	D4: Empirical economics *Saal PS/Großer Saal*
10:30am	The role of dividends in the emergence of bubbles in financial markets: Experimental evidence (Simone Alfarano, Eva Camacho-Cuena, Annarita Colasante, **Alba Ruiz-Buforn**)	Innovation and unemployment: an agent-based perspective (**Alessio Biondo**, Laura Mazzarino)	The complexity of a low carbon transition (Giorgos Galanis, **Giorgio Ricchiuti**, Ben Tippet)	Data generating process in GDP panels during 1960-2016: Do low, middle and high income countries differ? (**Surbhi Badhwar**)
10:55am	Import tariffs in coupled cobweb markets: Exploring the trade-off between efficiency and volatility (Myrna Hennequin, Dávid Kopányi, Anita Kopányi-Peuker, **Jan Tuinstra**, Frank Westerhoff)	Multiple equilibria, coordination failure, and business cycles in interdependent economies: A two-country investment model (**Taisei Kaizoji**, Mitja Steinbacher)	Heterogeneous expectations in two-sector DSGE model: Does the green transition trigger waves of greenflation? (**Nicolás Blampied**, Alessia Cafferata, Davide Radi)	Chinese Renminbi internationalization and a BRICS reserve currency: Is it possible and what will it take? (**Lebogang Mateane**, Tshepiso Moahloli, Godfrey Charles-Cadogan, Amos Peters, Mark Ellyne, Haim Abraham)
11:20am	Inflation expectations and economic preferences (Lena Dräger, **Maximilian Floto**, Marina Schröder)	Mitigating real business cycles: Simulating top-down and bottom-up credit strategies in an agent-based model of bank credit (**Mitja Steinbacher**)	An agent-based model for understanding driving mechanism in green growth transitions (**Aida Figueroa Alvarez**, Sarah Wolf)	Revisiting the dynamic effects of the ECB monetary policy in Germany and France (**Maybrit Wächter**)

Wednesday, July 10 – Noon Parallel Sessions (1:15pm – 2:30pm)				
Session	E1: Expectations and forecasting	E2: Monetary policy	E3: Learning and rationality	E4: Climate policies
Room	*Festsaal*	*Seminarraum 1*	*Seminarraum 2*	*Saal PS/Großer Saal*
1:15pm	Market and price forecasting behavior of large language models compared to human subjects (**Maria del Rio-Chanona**, Marco Pangallo, Pamela Mishkin, Cars Hommes)	Leaning against the wind in the New Keynesian model with heterogeneous expectations (**Mikhail Anufriev**, Fabio Lamantia, Davide Radi, Tomas Tichy)	Sticky information across the wealth distribution (**Tommaso Di Francesco**)	Climate-induced shock transmission in a complex adaptive regional economy (**Joos Akkerman**, Tatiana Filatova)
1:40pm	Economic nowcasting with large-scale inter-industry payment data using a network approach (**Kerstin Hötte**, Anastasia Mantziou, Mihai Cucuringu, Andreina Naddeo, Gesine Reinert)	Attention and uncertainty about monetary policy: Evidence from corporate and banks earnings calls (**Pablo Pastor y Camarasa**)	Contingent rationality in agent-based modeling (**Corrado Di Guilmi**, Takashi Kamihigashi)	Dynamic production networks in the wake of asymmetric climate policies (**Elisa Grugni**, Ivan Savin, Jeroen van den Bergh)
2:05pm	Asset pricing model with heterogeneous beliefs: A hybrid simulation approach with large language model (LLM) agents (**Julide Yazar**)	Monetary policy and personal inequality: A heterogeneous agents' approach (Andrea Boitani, **Lorenzo di Domenico**, Giorgio Ricchiuti)	Does learning lead to endogenous business cycles? (Thomas Cook, **Zach Modig**, Nathan Palmer, April Nellis)	Conditions and pathways for a climate club to reach a more ambitious global treaty (**Pablo Núñez Yebra**, Jeroen van den Bergh, Ivan Savin, Jozsef Zsiros)
Wednesday, July 10 – Afternoon Parallel Sessions (3:00pm – 4:15pm)				
Session	F1: Complexity and nonlinear dynamics	F2: Large-scale ABMs	F3: ABM and finance	YSI: Exploring monetary policy through heterogeneous agent models
Room	*Festsaal*	*Seminarraum 1*	*Seminarraum 2*	*Saal PS/Großer Saal*
3:00pm	New economic era thinking and stock market bubbles: A two-dimensional piecewise linear discontinuous map approach (**Laura Gardini**, Davide Radi, Noemi Schmitt, Iryna Sushko, Frank Westerhoff)	Power through changing climate: An agent-based prospect on Iberian power markets (**Miquel Bassart-i-Loré**)	ABM of insurance price dynamics with heterogeneous beliefs (**Rei England**, Iqbal Owadally)	Inflation targeting and optimal fiscal portfolio for the US (**Arpan Chakraborty**)
3:25pm	Complexity and the processing of information (**Joep Lustenhouwer**, Alexandre Kohlhas)	A high-resolution agent-based model of the Hungarian housing market with macroeconomic feedbacks (Zsuzsanna Hosszú, **Bence Mérő**, Katalin Varga, Balázs Világi)	Complexity and long-range dependence of order flow in the financial markets (**Vygintas Gontis**)	Post-COVID inflation and the monetary policy dilemma: An agent-based scenario analysis (**Max Knicker**)
3:50pm	Labor market frictions in net-zero transformations: Incorporating behavioural heterogeneity into a data-driven network model (**Ebba Mark**, Maria del Rio-Chanona, Stefania Innocenti)	Developing a unified agent-based modelling framework for forecasting and policy analysis (Herbert Dawid, Domenico Delli Gatti, **Luca Fierro**, Sebastian Poledna)	Centralized vs. decentralized markets: The role of connectivity (Simone Alfarano, Albert Banal-Estañol, Eva Camacho-Cuena, **Giulia Iori**, Burcu Kapar, Rohit Rahi)	Inflation and distribution in a multi-sector agent-based macro model (**Alessandro Agnesi**)

Thursday, July 11 – Morning Parallel Sessions (10:30am – 11:45am)				
Session *Room*	G1: Financial market dynamics 2 *Festsaal*	G2: Macroeconomic dynamics *Seminarraum 1*	G3: Innovations *Seminarraum 2*	G4: Simulating economic dynamics *Saal PS/Großer Saal*
10:30am	Prediction, heuristics, and excess volatility (**Chris Georges**)	Adaptive expectations and heterogeneous anchoring in a New-Keynesian framework (Nicolás Blampied, **Alessia Cafferata**, Davide Radi, Mariacristina Uberti)	Insider imitation with product differentiation (**Diego d'Andria**)	Adoption of CBDC through lens of ABM (**Debmallya Chanda**, Aldo Glielmo, Domenico Delli Gatti)
10:55am	Reinforcement learning and rational expectations equilibrium in limit order markets (Xuan Zhou, Shen Lin, **Xue-Zhong He**)	Output gap uncertainty, fiscal policy and risk premia under endogenous credibility (**Jonas Dix**, Christian Proaño)	Fluctuations characteristics in the non-fungible token (NFT) market (**Marcin Wątorek**, Jarosław Kwapień, Stansiław Drożdż)	Innovation in a multi-sector agent-based model: Macroeconomic impact and inter-sectoral spillover effects (**Silvano Cincotti**, Marcello Nieddu, Linda Ponta, Marco Raberto)
11:20am	Information and fake news in financial markets: Insights from a switching model (Sarah Mignot, **Paolo Pellizzari**, Frank Westerhoff)	An evolutive model of boundedly rational consumer with changing preferences and reference group consumption (Gian Bischi, **Fabio Tramontana**)	Pricing patents as real options under a stochastic bass model (**Tianhao Zhi**, Nicolas Langrené)	The evolving boundary of green technology (Nicolo Barbieri, Kerstin Hötte, **Peter Persoon**)
Thursday, July 11 – Noon Parallel Sessions (1:15pm – 2:30pm)				
Session *Room*	H1: Financial market dynamics 3 *Festsaal*	H2: Inflation dynamics *Seminarraum 1*	H3: Estimation 2 *Seminarraum 2*	H4: Green technologies *Saal PS/Großer Saal*
1:15pm	Financial market model with heterogeneous traders: Exploring 2D discontinuous map (**Iryna Sushko**, Fabio Tramontana)	Energy shocks and sellers' inflation: An agent-based model (Leonardo Ciambezi, **Mattia Guerini**, Mauro Napoletano, Andrea Roventini)	Endogenous vs exogenous instability: An out-of-sample comparison (Domenico Delli Gatti, **Filippo Gusella**, Giorgio Ricchiuti)	Income inequality, technology uptake, and sustainable transitions (**Prescott Morley**, Florian Knobloch)
1:40pm	Diverse risk preferences and heterogeneous expectations in an asset pricing model (Thomas Gomez, **Giulia Piccillo**)	The (dis)equalizing effects of production networks (**Leonhard Ipsen**, Jan Schulz-Gebhard)	Learning latent variables for data-driven agent-based models (**Marco Pangallo**)	Taking the green pill: Directed technical change, green transition and related macro-financial risks in the MATRIX model (Sergio Vergalli, Emanuele Ciola, **Enrico Turco**, Davide Bazzana, Massimiliano Rizzati)
2:05pm	Persistent pessimism or imperfect anchoring? Evidence from the European swaps market (**Rafael Kothe**)	Rethinking inflation in an agent-based macroeconomic model (**Leonardo Ciambezi**, Mattia Guerini, Mauro Napoletano, Andrea Roventini)	Calibration of a novel large-scale economic agent-based model (**Samuel Wiese**, Jagoda Kaszowska-Mojsa, Joel Dyer, José Moran, Marco Pangallo, Anisoara Calinescu, Doyne Farmer)	Inter-generational technological spillovers and endogenous growth: The role of informal job networks (Alessia Cafferata, Davide Radi, **Daniele Ravasi**)