



Program

First Workshop on Breaking Confines

Convenors: Martin Carrier (Bielefeld, GER)
Armin Gölzhäuser (Bielefeld, GER)

ZiF and Bielefeld University, 13-15 November 2019

WEDNESDAY, 13 NOVEMBER 2019

11:00-12:00 *Arrival, Registration and Light Snack at ZiF*

12:00-12:10 **Welcome address**
Britta Padberg (ZiF, Managing Director, Bielefeld, GER)

12:10-12:30 **Conference Opening**
Martin Carrier (Bielefeld University, Bielefeld, GER)
Why Breaking Confines?

Session 1: Big Data
Moderation: *Andrea Bräutigam, Alexander Sczyrba*
(Bielefeld University, Bielefeld, GER)

12:30-13:30
(incl. 15 min. discussion) *Zoran Nikoloski* (MPI für molekulare Pflanzenphysiologie, Potsdam)
Integration of Genomics Data in Large-Scale Models of Plant Metabolism
Improve Genomic Prediction

13:30-14:30
(incl. 15 min. discussion) *Andreas Freier* (Hapag Lloyd, Hamburg, GER)
Digital Network Management: Modeling the Global Optimization of an Ocean Carriers Multi-modal Logistics System

14:30-15:00 *Andrea Bräutigam, Alexander Sczyrba* (Bielefeld University, Bielefeld, GER)
Summary of Session

15:00-15:30 *Coffee Break* (ZiF cafeteria)

Session 2: Modelling Climate Change
Moderation: *Katharina Kohse-Höinghaus, Olaf Kruse*
(Bielefeld University, Bielefeld, GER)

15:30-16:30
(incl. 15 min. discussion) *Carlo Jäger* (Global Climate Forum e. V., Berlin, GER)
Climate Change as Systemic Risk: Modelling and Decision Support

16:30-17:30
(incl. 15 min. discussion) *Hai Wang* (Stanford University, Stanford, USA)
Modeling Complex, Multiphysics Reactive Processes—Uncertainties and Underdetermined Systems

17:30-18:30
(incl. 15 min. discussion) *Raffaella Hillerbrand* (KIT, Karlsruhe, GER)
Uncertainty Communication in Climate Modeling

18:30–19:00	<i>Katharina Kohse-Höinghaus, Olaf Kruse</i> (Bielefeld University, Bielefeld, GER) Summary of Session
19:00	<i>Dinner at ZiF cafeteria and subsequent informal get-together at ZiF fellow room</i>

THURSDAY, 14 NOVEMBER 2019

Session 3: Idealized Models

Moderation: *Angelika Kühnle, Armin Gölzhäuser* (Bielefeld University, Bielefeld, GER)

09:30–10:30 (incl. 15 min. discussion)	<i>Angela Potochnik</i> (University of Cincinnati, Cincinnati, USA) Causal Patterns and Styles of Explanation
10:30–11:30 (incl. 15 min. discussion)	<i>Axel Groß</i> (Ulm University, Ulm, GER) Modeling Approaches in Materials and Interface Science from the Perspective of a Theoretical Physicist and Chemist
11:30–12:00	<i>Angelika Kühnle, Armin Gölzhäuser</i> (Bielefeld University, GER) Summary of Session
12:00–13:30	<i>Lunch at ZiF Cafeteria</i>

Session 4: Theoretical and Empirical Models in Life and Social Science

Moderation: *Marie Kaiser, Klaus Reinhold, Herbert Dawid* (Bielefeld University, Bielefeld, GER)

13:30–14:30 (incl. 15 min. discussion)	<i>Tarja Knuutila</i> (Vienna University, AUT) De-Idealization—No Easy Reversals
14:30–15:30 (incl. 15 min. discussion)	<i>Jostein Starrfelt</i> (University of Oslo, NOR) On the Use and Misuse of Mathematical Models in Evolutionary Biology
15:30–16:00	<i>Coffee break at ZiF cafeteria</i>
16:00–17:00 (incl. 15 min. discussion)	<i>Christoph Kuczmins</i> (Karl Franzens University, Graz, AUT) Modelling Coordination Problems in Economic and Social Interaction
17:00–17:30	<i>Herbert Dawid, Marie I. Kaiser, Klaus Reinhold</i> (Bielefeld University, Bielefeld, GER) Summary of Session
17:30–17:45	<i>Martin Carrier and Armin Gölzhäuser</i> (Bielefeld University, Bielefeld, GER) Short Summary of Days 1 + 2
17:45	<i>Transfer from ZiF to Bielefeld University</i>
18:15–18:35	<i>Angelika Epple, Gerhard Sagerer</i> (Bielefeld University, Bielefeld, GER) Welcome and Introduction <i>Opening of 50th Anniversary Conference</i>
18:40	<i>Robbert Dijkgraaf</i> (Princeton University, USA) Keynote: The Usefulness of Useless Knowledge and the Importance of Basic Research (provisional title), (Audimax, Bielefeld University)
20:00	<i>Dinner at X Building, Bielefeld University campus</i>

FRIDAY, 15 NOVEMBER 2019

Principles of Modelling (Lecture Halls at Bielefeld University)

09:00–10:00 *Nancy Cartwright* (Durham University, University of California, San Diego, USA)
Keynote Talk: **Why Big Theories are Here to Stay** (Audimax, Bielefeld University)

Panel Discussions (Panel D, H14, Bielefeld University)

Panel D: Interdisciplinary Models for a Complex World
Organizers: *Martin Carrier, Armin Götzhäuser, Marie I. Kaiser*

10:30–10:40 Brief Panel Introduction
Martin Carrier, Armin Götzhäuser, Marie I. Kaiser

10:40–11:30 (incl. 15 min. discussion) *Paul Humphreys* (University of Virginia, Charlottesville, USA)
Transdisciplinary Templates, Machine Learning, and the Prospects for Theory-free Models

11:30–11:50 *Coffee Break*

11:50–12:40 (incl. 15 min. discussion) *Kurt Kremer* (MPI für Polymerforschung, Mainz, GER)
Random Walks: The Role of Topological Constraints in Physics and Beyond

12:40–13:30 (incl. 15 min. discussion) *Franjo Weissing* (University of Groningen, NED)
The Causes and Consequences of Individual Differences

13:30–14:30 *Lunch at University*

Podium Discussions (Audimax, Bielefeld University)

14:45–16:15 Discussion: **The Role of Theory in Different Disciplines**
Manuela Lenzen welcomes highly competent guests

16:15–17:00 *Coffee Break*

17:00–18:30 Discussion with different stakeholders from Politics, University Management etc.
Moderation: Benedikt Schulz (freelance journalist)
Tentative title: HOW CAN SCIENCE BE CONTROLLED/MANAGED IN THE AGE OF DATA? GOOD GOVERNANCE VS. ECONOMIZATION
With: *Robert Dijkgraaf, Dieter Imboden, Ada Pellert, Eva Quante-Brandt, Gerhard Sagerer*

19:30 *Informal dinner at Wernings Weinstube* (Bielefeld, old town)