## 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

<table>
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<th>Time</th>
<th>Event</th>
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<td>11:00-12:00</td>
<td>Arrival, Registration and Light Snack at ZiF</td>
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| 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?                                               |
| 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)                                          |
| 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) | Raffaela Hillerbrand (KIT, Karlsruhe, GER)  
Uncertainty Communication in Climate Modeling                         |
18:30–19:00 Katharina Kohse-Höinghaus, Olaf Kruse (Bielefeld University, Bielefeld, GER)
Summary of Session

19:00 Dinner at ZiF cafeteria and subsequent informal get-together at ZiF fellow room

**THURSDAY, 14 NOVEMBER 2019**

**Session 3: Idealized Models**

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

09:30–10:30 (incl. 15 min. discussion) Angela Potochnik (University of Cincinnati, Cincinnati, USA)
**Causal Patterns and Styles of Explanation**

10:30–11:30 (incl. 15 min. discussion) Axel Groß (Ulm University, Ulm, GER)
**Modeling Approaches in Materials and Interface Science from the Perspective of a Theoretical Physicist and Chemist**

11:30–12:00 Angelika Kühnle, Armin Götzhauser (Bielefeld University, GER)
**Summary of Session**

12:00–13:30 Lunch at ZiF Cafeteria

**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) Tarja Knuuttila (Vienna University, AUT)
**De-Idealization—No Easy Reversals**

14:30–15:30 (incl. 15 min. discussion) Jostein Starrfelt (University of Oslo, NOR)
**On the Use and Misuse of Mathematical Models in Evolutionary Biology**

15:30–16:00 Coffee break at ZiF cafeteria

16:00–17:00 (incl. 15 min. discussion) Christoph Kuczmics (Karl Franzens University, Graz, AUT)
**Modelling Coordination Problems in Economic and Social Interaction**

17:00–17:30 Herbert Dawid, Marie I. Kaiser, Klaus Reinhold (Bielefeld University, Bielefeld, GER)
**Summary of Session**

17:30–17:45 Martin Carrier and Armin Götzhauser (Bielefeld University, Bielefeld, GER)
**Short Summary of Days 1 + 2**

17:45 Transfer from ZiF to Bielefeld University

18:15–18:35 Angelika Epple, Gerhard Sagerer (Bielefeld University, Bielefeld, GER)
**Welcome and Introduction**
Opening of 50th Anniversary Conference

18:40 Robbert Dijkgraaf (Princeton University, USA)
**Keynote:** The Usefulness of Useless Knowledge and the Importance of Basic Research (provisional title), (Audimax, Bielefeld University)

20:00 Dinner at X Building, Bielefeld University campus
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)

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

Panel D: Interdisciplinary Models for a Complex World  
Organizers: Martin Carrier, Armin Gölzhäuser, 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)