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 Arrivel, 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)
Raffaela Hillerbrand (KIT, Karlsruhe, GER)
Uncertainty Communication in Climate Modeling
THURSDAY, 14 NOVEMBER 2019

**Session 3: Idealized Models**

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:30–10:30</td>
<td>Angela Potochnik (University of Cincinnati, Cincinnati, USA)</td>
<td>Causal Patterns and Styles of Explanation</td>
</tr>
<tr>
<td>10:30–11:30</td>
<td>Axel Groß (Ulm University, Ulm, GER)</td>
<td>Modeling Approaches in Materials and Interface Science from the Perspective of a Theoretical Physicist and Chemist</td>
</tr>
<tr>
<td>11:30–12:00</td>
<td>Angelika Kühnle, Armin Gölzhäuser (Bielefeld University, GER)</td>
<td>Summary of Session</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:30–14:30</td>
<td>Tarja Knuttila (Vienna University, AUT)</td>
<td>De-Idealization—No Easy Reversals</td>
</tr>
<tr>
<td>14:30–15:30</td>
<td>Jostein Starrfelt (University of Oslo, NOR)</td>
<td>On the Use and Misuse of Mathematical Models in Evolutionary Biology</td>
</tr>
<tr>
<td>15:30–16:00</td>
<td>Christoph Kuczmics (Karl Franzens University, Graz, AUT)</td>
<td>Coffee break at ZiF cafeteria</td>
</tr>
<tr>
<td>16:00–17:00</td>
<td>Herbert Dawid, Marie I. Kaiser, Klaus Reinhold (Bielefeld University, Bielefeld, GER)</td>
<td>Modelling Coordination Problems in Economic and Social Interaction</td>
</tr>
<tr>
<td>17:00–17:30</td>
<td>Herbert Dawid, Marie I. Kaiser, Klaus Reinhold (Bielefeld University, Bielefeld, GER)</td>
<td>Summary of Session</td>
</tr>
<tr>
<td>17:30–17:45</td>
<td>Martin Carrier and Armin Gölzhäuser (Bielefeld University, Bielefeld, GER)</td>
<td>Short Summary of Days 1 + 2</td>
</tr>
</tbody>
</table>

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)
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)

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

10:40–11:30  
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  
Kurt Kremer (MPI für Polymerforschung, Mainz, GER)  
Random Walks: The Role of Topological Constraints in Physics and Beyond

12:40–13:30  
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