

# Ulrich Gähde, Stephan Hartmann, and Jörn Henning Wolf

## Preface

In 2006, within the Academy of Sciences and Humanities in Hamburg, the working group *Models, Simulations, and the Reduction of Complexity* was founded. In this group, scientists from various disciplines – economics, engineering science, history of science, mathematics, medicine, philosophy, physics, psychology, sociology – cooperate in order to analyze methodological and epistemological problems connected with the use of models and simulations in an interdisciplinary framework. As a first public event, the members of this group, in cooperation with Stephan Hartmann (then at Tilburg University, The Netherlands), organized an international conference on *Models, Simulations, and the Reduction of Complexity* that took place at the University of Hamburg on 18–19 March, 2010. During this conference, eight selected model building and simulation projects from different disciplines from the natural, engineering, and social sciences were presented. Each presentation was commented on by a philosopher of science specializing in problems of model construction and simulation, and trained in the respective discipline. The main task of the commentators was pointing out and analyzing methodological, discipline-specific peculiarities, as well as any interdisciplinary parallels of the modeling and simulation techniques applied. The subsequent discussions focused on different strategies used for the reduction of complexity in the various disciplines, on the relation between models and underlying theories, and on the possibility for one discipline to learn from the techniques and strategies used in others. The essays and commentaries assembled in this volume are revised and extended versions of the papers and comments presented at this conference.

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