MODELS *and* SIMULATIONS 8

UNIVERSITY *of* SOUTH CAROLINA, MARCH 15th – 17th, 2018

THURSDAY, MARCH 15th		
8:00-9:00	Registration	8th Floor Lobby
9:00-9:30	Opening	Lumpkin Auditorium, 8th Floor of Close-Hipp
9:30-10:30	Plenary	Mieke Boon – "Scientific Models in the Engineering Sciences" (Lumpkin Auditorium, 8th Floor of Close-Hipp)
10:30-11:00	Coffee Break	Catered, 8th Floor Lobby
11:00-13:00	Contributed Papers 1	1. Symposium: Scale Models in Engineering (350) 2. Opacity and Epistemology of Simulations (351)
13:00-14:00	Lunch Break	Catered, 8th Floor Lobby
14:00-16:00	Contributed Papers 2	3. Models in Economics (350) 4. Models in Physics (351) 5. Epistemology and Models (363)
16:00-16:30	Coffee Break	Catered, 8th Floor Lobby
16:30-18:30	Contributed Papers 3	6. Models in Chemistry and Biology (350) 7. Models in Policy (351)
FRIDAY, MARCH 16th		
8:00-9:00	Registration	8th Floor Lobby
9:00-10:00	Plenary	Michael Weisberg – "Confirmation Theory for Idealized Models" (Lumpkin Auditorium, 8th Floor of Close-Hipp)
10:00-10:30	Coffee Break	Catered, 8th Floor Lobby
10:30-12:30	Contributed Papers 4	8. Symposium: Models and Simulations in Systematics (Lumpkin Auditorium, 8th Floor of Close-Hipp) 9. Mathematics and Models (350) 10. Idealization, Abstraction, and Models of Science (351)
12:30-13:30	Lunch Break	Catered, 8th Floor Lobby
13:30-15:00	Contributed Papers 5	11. AJI Symposium: Predicting the Unexpected, Pt. 1 (Lumpkin Auditorium, 8th Floor of Close-Hipp) 12. Symposium: Why Simulations are Different (350)
15:00-15:30	Coffee Break	Catered, 8th Floor Lobby
15:30-17:30	Contributed Papers 6	11. AJI Symposium: Predicting the Unexpected, Part 2 (Lumpkin Auditorium, 8th Floor of Close-Hipp) 13. Relationship between Explanation and Idealization (350)
17:45-18:45	Plenary	Michela Massimi – "What Scientific Models Are for"
19:30-21:30	Conference Dinner	Top of Carolina
SATURDAY, MARCH 17th		
8:00-9:00	Registration	Catered, 8th Floor Lobby
9:00-10:00	Plenary	Peter Mättig – "The Role and Dynamics in Models Particle Physics" (Lumpkin Auditorium, 8th Floor of Close-Hipp)
10:00-10:30	Coffee Break	Catered, 8th Floor Lobby
10:30-12:30	Contributed Papers 7	14. Toy Models and Representation in Scientific Practice (350) 15. Model Explanation (351) 16. History and Philosophy of Computer Simulations (363)
12:30-13:30	Lunch Break	Catered, 8th Floor Lobby
13:30-15:30	Contributed Papers 8	17. Representation and Similarity (350) 18. Models in Climate Science (351)

Registration, lunches, and coffee breaks will take place in the lobby outside the Lumpkin Auditorium (8th Floor of Close-Hipp). Contributed papers will take place on the 3rd floor of the Close-Hipp Building.

The conference is supported by the Department of Philosophy, the USC Nanocenter, the Department of Civil and Environmental Engineering, and the Ann Johnson Institute for Science, Technology & Society.

Plenary 1: Mieke Boon (Chair: Robert Mullen)
Plenary 2: Michael Weisberg (Chair: Michael Dickson)
Plenary 3: Michela Massimi (Chair: Michael Stöltzner)
Plenary 4: Peter Mättig (Chair: Tarja Knuuttila)

1. SYMPOSIUM: SCALE MODELS *in* ENGINEERING

1a	Sterrett	Scale models, invariants, and similarity
1b	Pincock	Concrete scale models and essential idealization
1c	Sánchez-Dorado	Not only size matters. Scale models and judgments of similarity
1d	Poznic	Architectural Modeling: Interplay of Designing and Representing

2. OPACITY *and* EPISTEMOLOGY *of* SIMULATIONS

CHAIR: Johannes Lenhard

32	Humphreys	Reducing Representational Opacity
28	Formanek	Modal troubles with epistemic opacity
60	Creel	Transparency in Complex Computational Systems
17	Lehtinen	Testing the tools; Computer simulations in the design of research methods

3. MODELS *in* ECONOMICS

CHAIR: Justin Price

73	Knuuttila and Morgan	Simple - And Thick: Abstract Models in Economics
58	Sperry	Complexity Economics: When Equilibrium Explanations Fail
3	Nebel	A Puzzle about Economic Explanation
55	Jhun	Modelling Complex Phenomena: Econometrics as a Case Study

4. MODELS *in* PHYSICS

CHAIR: Martina Merz

20	Jacquart	Observing the Invisible: Dark Matter & Computer Simulations
52	Elder	LIGO and Models as Mediators
38	Chall	Particle Physics Model-Groups as Scientific Research Programmes
34	Pronskikh	Simulation study of epistemic democracy in big science

5. EPISTEMOLOGY *and* MODELS

CHAIR: Julie Jebeile

51	Bursten	Against the Hierarchical View of Theories
39	Verreault-Julien	Learning and understanding with models: same same but different?
76	Henne	Denorming Causation: the model-based theory of causation and norms
48	Neuman and Danka	The intimate relationship between thought experiments and simulations - do they provide fresh knowledge about Nature?

6. MODELS *in* CHEMISTRY *and* BIOLOGY

CHAIR: Julia Bursten

15	Price	The Landing Zone - Preparing Ground for Model Transfer in Chemistry
47	Bolinska and Gandier	Understanding protein function through multiple models of structure: barriers to integration
22	Bokulich	Using Models to Correct Data: Paleodiversity and the Fossil Record
42	Parkkinen	Are model organisms like theoretical models?

7. MODELS *in* POLICY

CHAIR: Jennifer Jhun

44	Cuffaro and Kao	Employing Agent-Based Computer Simulations in Developing Theories of Distributive Justice
36	MacLeod and Nagatsu	What does interdisciplinarity look like in practice: Mapping interdisciplinary modeling and its limits in the environmental sciences

8. SYMPOSIUM: MODELS *and* SIMULATIONS *in* SYSTEMATICS

9a	Quinn	Models and Simulations in Systematics
9b	Novick	Models and Simulations in Systematics
9c	Hillis	Models and Simulations in Systematics

9. MATHEMATICS *and* MODELS

CHAIR: Christopher Pincock

13	Friedman and Krauthausen	Models and Mathematics at the End of the 19th Century
19	Danne	The Mathematical Language Needed on (but Missing from) Surface Spectral Reflectance Plots
50	Ishida	Equations and models
70	Guralp	Using data models and simulations in testing supernova cosmology

10. IDEALIZATION, ABSTRACTION, *and* MODELS *of* SCIENCE

CHAIR: Collin Rice

2	Shech and Gelfert	The Exploratory Role of Idealizations and Limiting Cases in Models
21	Rivat	Effective theories and infinite idealizations: A challenge for scientific realism
77	Holman	It's only a model
74	Carrillo and Knuuttila	Macro Level Modeling of Phenomena: A Challenge to the Current Mechanist Discussion

11. SYMPOSIUM (AJI): PREDICTING *the* UNEXPECTED (In two parts)

11a	Weinkle	Knowledge Politics and Catastrophe Insurance
11b	Merz	Simulation, Images, and the Statistics of Rare Events: The Case of the Higgs Search
11c	Lenhard and Hasse	A Reproducibility Crisis in Exact Sciences. Simulation and the Identity of Mathematical Models
11d	Simpson	Complexity – Tractability – Significance. Finding a Balance in Statistical Modeling

12. SYMPOSIUM: WHY SIMULATIONS ARE DIFFERENT

14a	Beisbart	Computer simulation in experimentation versus computer simulation as experiment
14b	Boge	Computer simulations and uncertain reasoning
14c	Grünke	Epistemic status of simulations and the role of verification

13. *The* RELATIONSHIP *between* EXPLANATION *and* IDEALIZATION

CHAIR: Elay Shech

8	Rice	Universality and Modeling Limiting Behaviors
10	Wayne	Model-based explanation and global theory
29	Zach	Minimal models, representation, and explanation
30	Khalifa and Sullivan	Idealizations and Understanding: Much Ado about Nothing?

14. TOY MODELS *and* REPRESENTATION *in* SCIENTIFIC PRACTICE

CHAIR: Alisa Bokulich

41	Nguyen	It's not a game: accurate representation with toy models
43	Dethier	Models, Fictions, and Representing Scientific Practice
24	Boesch	Representational Licensing in Scale-Models and Ecological Graph Models: Two Case Studies

15. MODEL EXPLANATION

CHAIR: Nicholas Danne

53	Revlett	Demystifying ontic explanation
68	King	Explanatory Models: A framework for instrumentalism
18	Fumagalli	How 'Thin' Rational Choice Theory Explains Choices
57	Muntean	Aggregating multilevel mechanistic models from Big Data with Machine Learning

16. HISTORY *and* PHILOSOPHY *of* COMPUTER SIMULATIONS

CHAIR: Paul Humphreys

9	Duran	The historical and philosophical roots of computer simulations
35	Hladky	Simulations - Lessons from model theory
78	Livengood, Briley, and Derringer	Reflecting on Simulating Models of Development under Plausible Gene-Environment Interplay
45	Haar	Discovery via computer simulation model-building

17. REPRESENTATION *and* SIMILARITY

CHAIR: Michael Poznic

27	Khosrowi	Getting Serious about Shared Features
72	Nordmann	Similarity as Evidence
37	Greif	Images and Consequents. On Formal and Material Analogy in Computer Simulations

18. MODELS *in* CLIMATE SCIENCE

CHAIR: Jessica Weinkle

25	Roussos	Against model aggregation
62	Pruss	A defense of historical proxy models in climate science
67	Jebeile and Crucifix	Ensemble of climate models or missed opportunity?
31	Lusk and Goldsby	The Decision-Relevancy of Climate Model Results: Idle Arguments or Idle Dreams?