

## *Curriculum Vitae*

### **Katherine Brading**

*William J. and Dorothy K. O'Neill Collegiate Professor of Philosophy  
University of Notre Dame*

kbrading@nd.edu  
Department of Philosophy, 100 Malloy Hall,  
University of Notre Dame, Notre Dame, IN 46556, USA

#### ***HIGHER EDUCATION***

##### **D.Phil., Philosophy, University of Oxford (2003)**

*Thesis:* 'Symmetries, Conservation Laws, and Noether's Variational Problem'

Supervisor: Dr. H. R. Brown (Reader in Philosophy of Physics, University of Oxford)

Examiners: Professor M. Redhead (London School of Economics)

Dr. S. Saunders (Lecturer in Philosophy of Science, University of Oxford)

##### **B.Phil., Philosophy, University of Oxford (1996)**

*Thesis:* 'The Metaphysics of Causation'

##### **B.Sc., Physics and Philosophy, First Class Honours, King's College, University of London (1992)**

#### ***EMPLOYMENT HISTORY***

July 2010 – present, William J. and Dorothy K. O'Neill Collegiate Professor of Philosophy, University of Notre Dame.

May 2010 – present, Associate Professor of Philosophy with tenure, University of Notre Dame.

July 2004 – May 2010, Assistant Professor of Philosophy, University of Notre Dame.

October 2000 – April 2004, Junior Research Fellow in Philosophy of Science, Wolfson College, Oxford.

1997 – 2002, tutoring and lecturing in philosophy for five Oxford Colleges, the Oxford University Department of Continuing Education, and the Stanford Program in Oxford.

October 1992 – September 1994, Nuclear Safety Engineer, Nuclear Electric plc, Gloucester, England.

#### ***SCHOLARSHIPS, STUDENTSHIPS, FELLOWSHIPS***

Junior Research Fellow in Philosophy of Science, Wolfson College, Oxford (October 2000 – April 2004).

Eunice Dutoil Turner Scholar in Philosophy, St Hugh's College, Oxford (October 1999 - October 2000).

British Academy Studentships (October 1994 - June 1996; October 1999 - December 2000).

#### ***EXTERNAL GRANTS***

National Science Foundation grant (NSF SES-0724383 Brading 201201), project entitled 'Structuralist Approaches to Physics' (2007-2008).

## **PROFESSIONAL MEMBERSHIPS**

British Society for the Philosophy of Science  
Philosophy of Science Association  
Aristotelian Society

## **BOOKS AND MONOGRAPHS**

1. Co-editor: *Symmetries in Physics: Philosophical Reflections*, K. A. Brading and E. Castellani (eds.), Cambridge University Press, 2003.  
Paperback: 2009.

## **REFEREED PUBLICATIONS**

2. 'The development of the concept of hypothesis from Copernicus to Boyle and Newton', *Krisis* 8, 2000, pp. 5-16.
3. 'Which Symmetry? Noether, Weyl and Conservation of Electric Charge', *Studies in the History and Philosophy of Modern Physics* 33, 2002, pp. 3-22.
4. 'General Covariance from the Perspective of Noether's Theorems', with H. R. Brown, *Diálogos* 79, 2002, pp. 59-86.
5. 'Symmetry and Symmetry-Breaking', *The Oxford Companion to the History of Modern Science*, OUP, 2003, pp. 784-786.
6. 'Symmetry and Symmetry-Breaking', *Stanford Encyclopedia of Philosophy*, with E. Castellani, 2003 (11,000 words, approximately). See <http://plato.stanford.edu/entries/symmetry-breaking/>.
7. 'Symmetries and Noether's Theorems', with H. R. Brown, in (1) above, pp. 89-109.
8. 'Introduction', with E. Castellani, in (1) above, pp. 1-18.
9. 'Are gauge symmetry transformations observable?', with H. R. Brown, *The British Journal for the Philosophy of Science* 55, 2004, pp. 645-665.
10. 'Where lies the empirical significance of symmetry in physics?', *Symétries, Contributions au séminaire de Hans-Sur-Lesse*, P. Radelet (ed.), Brepols Publishers n. v., Turnhout, Belgium, 2005. pp. 63-71.
11. 'A Note on General Relativity, Energy Conservation, and Noether's Theorems', *The Universe of General Relativity, Einstein Studies Vol 11*, A. J. Kox and J. Eisenstaedt (eds.), 2005, pp. 125-135.
12. 'Scientific Structuralism: Presentation and Representation', with E. Landry, *Philosophy of Science* 73, 2006, pp. 571-81.  
This paper fits a 5000 word limit. A longer version (7800 words approx.) is available at <http://philsci-archive.pitt.edu/archive/00002181/>.
- 12a. 'A minimal construal of scientific structuralism', with E. Landry, 2005.

13. 'Symmetry in classical physics', with E. Castellani, in J. Butterfield and J. Earman (eds.), *Handbook of the Philosophy of Physics*, North-Holland, 2007, pp. 1331-1367.
14. Review article: L. Corry, *David Hilbert and the Axiomatization of Physics (1898-1918)*, in *Philosophia Mathematica* (III) 15, 2007, 1-16.
15. 'Hilbert's "Foundations of Physics": Gravitation and electromagnetism within the axiomatic method', with T. A. Ryckman, *Studies in the History and Philosophy of Modern Physics* 39, 2008, pp. 102-153.
16. Book review: 'Mathematical and aesthetic aspects of symmetry', G. Hon and B. R. Goldstein, *From symmetria to symmetry: the making of a revolutionary scientific concept*, in *Metascience* 19, 2010, pp. 277-280.
17. Book review: N. Huggett, *Everywhere and everywhen: adventures in physics and philosophy*, in the *American Journal of Physics* 78, 2010, pp.1071-1072.

#### **FORTHCOMING**

18. 'Newton's law-constitutive approach to bodies: a response to Descartes', in *Interpreting Newton: critical essays*, ed. A. Janiak & E. Schliesser, Cambridge University Press.
19. 'Hilbert's Axiomatic Method and his "Foundations of Physics": Reconciling Causality with the Axiom of General Invariance', with T. A. Ryckman, in *Einstein and the Changing Worldviews of Physics*, *Einstein Studies* Vol 12, ch. 8, pp. 175-199. (In proof)
20. 'Hilbert on general covariance and causality', with T. A. Ryckman, in *Beyond Einstein: Essays on Geometry, Gravitation, and Cosmology*, *Einstein Studies* Vol. 13, Birkhäuser (Boston), ch. 1. (In proof)
21. 'Autonomous patterns and scientific realism', *Philosophy of Science* (PSA 2008 proceedings, symposia).
22. 'On composite systems: Descartes, Newton, and the law-constitutive approach', in *Vanishing Matter and the Laws of Nature: Descartes and Beyond*, ed. Dana Jalobeanu and Peter Anstey, *Studies in Seventeenth-Century Philosophy*, Routledge.
23. 'Structuralist approaches to physics: objects, models and modality', *Boston Studies in Philosophy of Science*, ed. Alisa and Peter Bokulich. (In proof)

#### **UNDER REVIEW**

24. 'Underdetermination as a path to ontic structural realism', with Alex Skiles.
25. 'Epistemic structural realism and Poincaré's philosophy of science', with Elise Crull.

## ***IN PROGRESS***

26. ‘Noether’s theorems’, with H. R. Brown.

27. ‘When the “Newman problem” isn’t a problem: lessons for structural realism’.

## ***CURRENT PROFESSIONAL ACTIVITIES***

Member of the Editorial Advisory Board for *Studies in History and Philosophy of Modern Physics* (since 2007).

Member of the Editorial Board for the new *European Journal for Philosophy of Science*, set up by the European Philosophy of Science Association (since 2009).

Associate Member of the Research Centre for the Foundations of European Modernity, University of Bucharest (since 2000).

Reilly Fellow, John J. Reilly Center for Science, Technology and Values, University of Notre Dame (since 2005).

Member of the Advisory Committee for the Cushing Memorial Prize (since 2008).

## ***GRADUATE STUDENT ACTIVITIES***

Dissertation committees: Brandon Fogel (2008); Brian Pitts (2008).

Dissertation proposal committees: Brian Pitts; Elise Crull.

Orals director: Robby Gustin

Orals committees: Iulian Toader; Elise Crull (2009); Charles Pence (2010).

Directed readings: Elise Crull (Fall 2007); Robby Gustin (Spring 2009).

## ***UNDERGRADUATE STUDENT ACTIVITIES***

Senior thesis supervision: Beata Aldridge (2008/09); Kristina Sault (2009/10).