Possible Topics for the 2014/5 MCMP Philosophy of Physics Reading Group

1. The Ontologies of Classical Physics (2 weeks):
   1. M. Wilson. What is Classical Mechanics Anyway? Manuscript 2013. (140 pp.)
2. Continuum Mechanics:
   1. S. Smith. Continuous Bodies, Impenetrability, and Contact Interactions: The View from the Applied Mathematics of Continuum Mechanics, British Journal for the Philosophy of Science (2007) 58 (3): 503-538.
   2. J. Butterfield. Against Pointillisme: a Call to Arms, in Explanation, Prediction and Confirmation, 2011, eds. D. Dieks, W. Gonzalez, S. Hartmann, T. Uebel and M. Weber, Springer, 347-366.
3. Newtonian forces:
   1. J. Bigelow, B. Ellis, and R. Pargetter. Forces. Philosophy of Science, 55(4):614–630, December 1988.
   2. O. Massin. The metaphysics of forces. Dialectica, 63:555–589, 2009.
   3. J. Wilson. Newtonian forces. The British Journal for the Philosophy of Science, 58:173–205, 2007.
4. Lagrangian Mechanics (2 weeks):
   1. J. Butterfield. Between Laws and Models: Some Philosophical Morals of Lagrangian Mechanics. Unpublished manuscript 2004. (106 pp.)
5. Hamiltonian Mechanics (2 weeks):
   1. J. Butterfield. On Symplectic Reduction in Classical Mechanics, in The Handbook of Philosophy of Physics, 2006, eds. J. Butterfield and J. Earman, North Holland, 1-131.
6. The Structure of Physics Debate (2 weeks):
   1. J. North. The ”structure” of physics: A case study. The Journal of Philosophy, 106(2):57–88, 2009.
   2. Swanson, Noel, and Hans Halvorson. (2012). “On North’s ‘The Structure of Physics’”. Manuscript. (10 pp.)
   3. T. Barrett. On the Structure of Classical Mechanics. British Journal for the Philosophy of Science (forthcoming, 2015). (34 pp.)
   4. E. Curiel. Classical mechanics is Lagrangian; it is not Hamiltonian. The British Journal for the Philosophy of Science, 65(2):269–321, 2014.
7. Principle of least action and dispositions:
   1. J. Katzav. Dispositions and the principle of least action. Analysis, 64(3):206–214, 2004.
   2. Reply by B. Ellis. Katzav on the limitations of dispositionalism. Analysis, 65(1):90–92, 2005.
   3. Reply to Ellis (2005): J. Katzav. Ellis on the limitations of dispositionalism. Analysis, 65(1):92–94, 2005.
   4. Karim P. Y. Thébault & Benjamin T. H. Smart. On the Metaphysics of Least Action. Unpublished, 2013. (19 pp.)
   5. Michael Stoeltzner. Manuscript.
8. Symmetries and Conservation (2 weeks):
   1. S. Smith. Symmetries and the explanation of conservation laws in the light of the inverse problem in Lagrangian mechanics. Studies in History and Philosophy of Modern Physics, Volume 39, Issue 2, May 2008, Pages 325–345.
   2. J. Butterfield. On Symmetries and Conserved Quantities in Classical Mechanics, in Physical Theory and its Interpretation, 2006, eds. W. Demopoulos and I. Pitowsky, Springer, 43-99.
   3. K Brading and E Castellani. Symmetries and invariances in classical physics, in The Handbook of Philosophy of Physics, 2006, eds. J. Butterfield and J. Earman, North Holland, 1331-1368.
9. The Problem of Time and Classical Field Theory (2 weeks):
   1. G. Belot. The Representation of Time and Change in Mechanics, in The Handbook of Philosophy of Physics, 2006, eds. J. Butterfield and J. Earman, North Holland, 133-227.
10. Modality and Classical Physics:
    1. J. Butterfield. David Lewis Meets Hamilton and Jacobi, Philosophy of Science 71, 2004, 1095-1106.
    2. J. Butterfield. Some Aspects of Modality in Analytical Mechanics, in Formale Teleologie und Kausalitat in der Physik, 2004, eds. P. Weingartner and M. Stoeltzner, Mentis, 160-198.