

# CURRICULUM VITAE

Theodore Arabatzis

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## **Institutional Address:**

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**Date and Place of Birth:** 5/14/1965, Thessaloniki, Greece

## **Education** (degree, date, Institution):

- B.Sc., 7/18/1988, Dept. of Electrical Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece
- M.A., 10/19/1990, Program in History of Science, Dept. of History, Princeton University
- Ph.D., 30/5/1995, Program in History of Science, Dept. of History, Princeton University

**Current Employment:** Associate Professor, Department of Philosophy & History of Science, University of Athens

## **Fellowships / Distinctions:**

- Stanley J. Seeger Fellow, Program in Hellenic Studies, Princeton University, Academic Year 1988/1989.
- Princeton University Fellow, Program in History of Science, Princeton University, Sept. 1989 - June 1993.
- Princeton University Lecturer, Department of History, Princeton University, Spring Semester, 1993 – 1994.
- Post-doctoral Fellow, Dibner Institute for the History of Science and Technology, MIT, Sept. 2000 – Aug. 2001.
- Visiting Scholar, Max Planck Institute for the History of Science, Berlin, Feb. 2007 – June 2007, June 2010.
- Visiting Professor, , L'École des hautes études en sciences sociales, Paris, May 2010

## **Professional activities**

- Co-editor (together with S. Psillos) of the journal *Metascience*
- Member of the *Committee for Integrated HPS*
- Referee for *British Journal for the Philosophy of Science*, *International Studies in the Philosophy of Science*, *Philosophy of Science*, *Studies in History and Philosophy of Modern Physics*, *Studies in History and Philosophy of Science*, *Neusis: Journal*

*for the History of Science and Technology, Cambridge University Press, University of Pittsburgh Press, Springer*

## **Memberships**

- History of Science Society (USA)
- Philosophy of Science Association (USA)
- European Philosophy of Science Association (member of the steering committee)
- Sigma Xi—The Scientific Research Society

## **PUBLICATIONS**

### **A. Books:**

- T. Arabatzis, *Representing Electrons: A Biographical Approach to Theoretical Entities* (Chicago: University of Chicago Press, 2006).

Reviews have appeared in *Ambix*, *Australian Physics*, *British Journal for the History of Science*, *Chemical Heritage NewsMagazine*, *Chemistry World*, *Contemporary Physics*, *Historical Studies in the Physical and Biological Sciences*, *International Studies in the Philosophy of Science*, *Isis*, *Journal of Chemical Education*, *Metascience*, *NTM*, *Studies in History and Philosophy of Modern Physics*, *Nuncius*, *Physics Education*, *Science & Public Policy*.

- T. Arabatzis and K. Gavroglu (eds.), *Einstein & Relativity: Historical Studies* (Crete University Press, 2006), (in Greek).

### **B. Textbooks (in Greek):**

- *History of Science and Technology* (Athens, 1999), (with J. Christianidis, D. Dialetis, K. Gavroglu, N. Kanderakis, S. Vernikos). For a description see T. Arabatzis et al, "History of Science in Greek Schools," *British Society for the History of Science Education Forum*, No. 28 (June 1999), pp. 3-6.
- *Philosophy of Science* (The Greek Open University, 2003), (with D. Anapolitanos, V. Karakostas, V. Kindi).

### **C. Selected articles**

- "Hidden entities and experimental practice: renewing the dialogue between history and philosophy of science." In S Mauskopf and T. M. Schmaltz (eds.), *Integrating History and Philosophy of Science: Problems and Prospects* (Springer, forthcoming).
- "The electron's hesitant passage to modernity, 1913-1925." In M. Epple & F. Müller (eds.), *Science as Cultural Practice* (Akademie-Verlag, forthcoming).
- "On the historicity of scientific objects." In T. Sturm & U. Feest (eds.), *What (Good) is Historical Epistemology?* (MPIWG preprint 386, 2009), pp. 63-71.
- "Cathode Rays" & "Electrons". In F. Weinert, K. Hentschel, & D. Greenberger

(eds.), *Compendium of Quantum Physics: Concepts, Experiments, History and Philosophy* (Springer, 2009), pp. 89-92, 195-199.

- "Causes and contingencies in the history of science: a plea for a pluralist historiography," *Centaurus* **50** (2008), 32-36.
- "The Problem of Conceptual Change in the Philosophy and History of Science." In S. Vosniadou (ed.), *International Handbook of Research on Conceptual Change* (Routledge, 2008), pp. 345-373 (with V. Kindi).
- "Experiment." In S. Psillos and M. Curd (eds.), *The Routledge Companion to the Philosophy of Science* (Routledge, 2008), pp. 159-170.
- "Conceptual Change and Scientific Realism: Facing Kuhn's Challenge." In S. Vosniadou, A. Baltas, X. Vamvakoussi (eds.), *Reframing the Conceptual Change Approach in Learning and Instruction* (Elsevier 2007), pp. 47-62.
- "On the Inextricability of the Context of Discovery and the Context of Justification." In J. Schickore and F. Steinle (eds.), *Revisiting Discovery and Justification: Historical and Philosophical Perspectives on the Context Distinction*, Archimedes 14 (Springer, 2006), pp. 215-230.
- "Physical Chemistry." In G. Roberts (ed.), *Chemical History: Reviews of the Recent Literature* (Royal Society of Chemistry, 2005), pp. 135-153, (with K. Gavroglu).
- "Experiment." In M. Horowitz (ed.), *New Dictionary of the History of Ideas*, Vol. 2 (Detroit: Charles Scribner's Sons, 2005), pp. 765-769.
- "Towards a Historical Ontology?" *Studies in History and Philosophy of Science* **34** (2003), 431-442.
- "Thermodynamics and Statistical Mechanics." In J. L. Heilbron (ed.), *The Oxford Companion to the History of Modern Science* (Oxford University Press, 2003), pp. 798-799.
- "The Zeeman Effect and the Discovery of the Electron." In J. Z. Buchwald and A. Warwick (eds.), *Histories of the Electron: the Birth of Microphysics* (Cambridge, Mass.: MIT Press, 2001), pp. 171-194.
- "Can a Historian of Science be a Scientific Realist?" *Philosophy of Science* **68**, suppl. (2001), S531-S541.
- "History of Science and Relativism," *Neusis* **9** (2000), 75-93 (in Greek).
- "How the Electrons Spend their Leisure Time: Philosophical Reflections on a Controversy between Chemists and Physicists." In P. Janich and N. Psarros (eds.), *The Autonomy of Chemistry: 3rd Erlenmeyer-Colloquy for the Philosophy of Chemistry* (Würzburg: Königshausen & Neumann, 1998), pp. 149-159.
- "The Chemists' Electron," *European Journal of Physics* **18** (1997), 150-163, (with Kostas Gavroglu).
- "Rethinking the 'discovery' of the electron," *Studies in History and Philosophy of Modern Physics* **27** (1996), 405-435.
- "Remarks on the Historiography of Scientific Discovery: The Case of the Electron,"

*Neusis* 5 (1996), 33-53 (in Greek).

- "Rational versus Sociological Reductionism: Imre Lakatos and the Edinburgh School." In K. Gavroglu et al. (eds.), *Trends in the Historiography of Science*, Boston Studies in the Philosophy of Science 151 (Dordrecht: Kluwer, 1994), pp. 177-192.
- "The Discovery of the Zeeman Effect: A Case Study of the Interplay between Theory and Experiment," *Studies in History and Philosophy of Science* 23 (1992), 365-388.

### **Invited lectures**

- "Analogies in Bohr's atomic model," Universität Stuttgart, Historisches Institut, Abt. für Geschichte der Naturwissenschaften und Technik, 22 June 2010.
- "The historicity of scientific objects," Institut d'histoire et de philosophie des sciences et des techniques, Université Paris-1, 19 May 2010.
- "Experimentation and the meaning of scientific concepts," L'École des hautes études en sciences sociales, 17 May 2010.
- "Hidden entities and experimental practice: renewing the dialogue between history and philosophy of science," Equipe REHSEIS - Université Paris 7, 11 May 2010.
- "The memory of concepts: a subject for historical epistemology," Conference on Historical Epistemology, Institute of Philosophy of the University of Leuven, Leuven, 10-12 December 2009.
- "Biographies of theoretical entities vs. scientific biographies," The Sciences in Historical and Philosophical Context, Universität Wien, 27th-28th November 2009.
- "Experimentation and the meaning of scientific concepts," Scientific Concepts and Investigative Practice, Technische Universität, Berlin, 22-23 May 2009.
- "Hidden entities and experimental practice: towards a two-way traffic between history and philosophy of science," The Vienna Circle Institute, Universität Wien, 15 October 2008.
- "The historicity of scientific objects: from cathode rays to electrons," What (Good) Is Historical Epistemology? International Conference, Max Planck Institute for the History of Science, Berlin, 24-26 July 2008.
- "Experimenting on (and with) hidden Entities: the inextricability of representation and intervention," Workshop: Generating Experimental Knowledge, Bergische Universität Wuppertal, Wuppertal, 14-16 June 2007.
- "The philosophy of experiment," Conference: Philosophy of the Sciences, Aristotle University of Thessaloniki, Thessaloniki, 6-8 May 2006.
- "The electron's hesitant passage to modernity, 1913-1925," Conference on "Modernism in the Sciences, ca. 1900-1940", Universität Frankfurt am Main, Frankfurt, 22-24 Μαπρίου 2006.

- "Conceptual change and scientific realism: facing Kuhn's challenge," European Association for Research on Learning and Instruction, 4<sup>th</sup> European Symposium, Conceptual Change: Philosophical, Historical, Psychological, and Educational Approaches, Delphi, 19-23 May 2004.
- "On the inextricability of the context of discovery and the context of justification," Conference on "Revisiting Discovery and Justification", Max Planck Institute for the History of Science, Berlin, 28 February-3 March 2002.
- "Revisiting the discovery of the electron: what is wrong with the received view?" Johannes Gutenberg-Universität Mainz, 20-26 February 2002.
- "Fashioning a quantum identity: a chapter from the life of the electron," The Electron and the Birth of Microphysics, Dibner Institute, MIT, Boston, 9-10 May, 1997.
- "The electron and the construction of the 'old' quantum theory: a chapter from the biography of a theoretical entity," British Society for the History of Science: The Electron, 100 Years of Physics and History, Science Museum, London, April 18-19, 1997.
- "How the electrons spend their leisure time: methodological reflections on a controversy between chemists and physicists," The 3rd Erlenmeyer-Colloquy for the Philosophy of Chemistry at the University of Marburg, Marburg, September 16-17, 1996.

### **Conference papers**

- "Experimentation and the meaning of scientific concepts," 2<sup>nd</sup> Conference of the European Philosophy of Science Association, VU University Amsterdam, 21-24 October 2009.
- "The mediating role of models in conceptual transitions: how the electron became a quantum entity," COGSCI 2009, The Annual Meeting of the Cognitive Science Society, VU University Amsterdam, 29 July – 1 August 2009 (with D. Ioannidou).
- "Truth and historical interpretation: Kuhn versus the analytic philosophical tradition," Conference on T. S. Kuhn's The Structure of Scientific Revolutions: Impact, Relevance and Open Issues, Athens, 21-23 August 2008.
- "Rethinking the theory-ladenness of observation: implications of the new experimentalism," 1<sup>st</sup> Conference of the European Philosophy of Science Association, Complutense University, Madrid, 14-17 November 2007.
- "Hidden entities and experimental practice: towards a two-way traffic between history and philosophy of science," &HPS1: Conference in Integrated History and Philosophy of Science, Center for Philosophy of Science, University of Pittsburgh, 11-14 October 2007.
- "Relativism and the History of Science," The 4<sup>th</sup> Bogazici University-Athens University Conference: Universalism/Realism vs. Culturalism/Relativism: Philosophical, Historical, and Political Perspectives, Bogazici University, 18-20 May 2006.

- "The historiography and the philosophy of science: towards a two way traffic," Conference of the British Society for the History of Philosophy: Philosophy and Historiography, Robinson College, Cambridge, 3-5 April 2006.
- "Armchair principles of charity and the practice of historical interpretation," Translation and Interpretation, International Symposium in collaboration with the European Center of Translation, Paros, 25-26 March 2006.
- "Misinterpreting (correct) Experimental Results: Kaufmann's Rejection of the Particulate Interpretation of Cathode Rays," Meeting of the History of Science Society, Austin, Texas, 18-21 November 2004.
- "The relevance of philosophy of science to history of science," Conference of the International Union of History and Philosophy of Science: New perspectives on the relation between history and philosophy of science, Paris, 3-5 October 2002.
- "Can a Historian of Science be a Scientific Realist?" Meeting of the Philosophy of Science Association, Vancouver, 2-5 November 2000.
- "The Discovery of the Electron and the Atomism Debate," Meeting of the History of Science Society, Vancouver, 2-5 November 2000.
- "The Historicity of Scientific Realism: Reflections on Meaning Variance," Conference: Incommensurability (and related matters), Universität Hannover, 13-16 June 1999.
- "Rethinking Scientific Discovery," International Congress on Discovery and Creativity, Gent, 14-16 May 1998.
- "The Zeeman Effect and the Construction of the Concept of the Electron," Joint Annual Meeting of the History of Science Society and the Society for the History of Technology, Madison, Wisconsin, 30 October - 3 November 1991.
- "Rational or Sociological Reconstruction of Science?" International Conference on Contemporary Trends in the Historiography of Science, Corfu, 27 May - 1 June 1991.
- "The Discovery of the Zeeman Effect: A Case Study of the Interplay between Theory and Experiment," Joint Atlantic Seminar in the History of the Physical Sciences, Harvard University, Boston, 20-21 April 1991.

## **Teaching Experience**

### **Undergraduate Courses**

- History 292 (Science in the Modern World), Assistant in Instruction (Instructor: Nancy Nersessian), Princeton University.
- History 298 (Technologies and their Societies: Historical Perspectives), Assistant in Instruction (Instructor: Michael Mahoney), Princeton University.
- Introduction to Newtonian Mechanics and Special Relativity, University of Athens.
- Philosophy of Science I (Philosophy of Science in the 20<sup>th</sup> Century), University of Athens.

- Philosophy of Science II (Explanation, Confirmation, Realism), University of Athens.
- Special Topics in Philosophy of Science, Senior Seminar, University of Athens.
- Philosophy of the Physical Sciences, University of Athens
- History of Science II (The Scientific Revolution), University of Athens.
- Special Topics in History of Science II, Junior Seminar, University of Athens.
- History of Science III (Science in the 18<sup>th</sup> and 19<sup>th</sup> Cent.), University of Athens
- Special Topics in History of Science III (19<sup>th</sup> Century Physics), Senior Seminar, University of Athens.
- History of the Physical Sciences, University of Athens
- Special Topics in the History of Physics and Chemistry: the Physical Sciences and the Military, Junior Seminar, University of Athens (co-taught with F. Papanelopoulou).
- Women in the History of Science, University of Athens (co-taught with M. Rentetzi).
- Introduction to the History of Science, University of Crete (co-taught with K. Gavroglu and M. Patiniotis).
- The Scientific Revolution, Summer School, University of Bogazici.

### **Graduate Seminars**

- Scientific Realism, University of Athens & National Technical University of Athens.
- Historiography of Science, University of Athens & National Technical University of Athens (co-taught with K. Gavroglu and M. Assimakopoulos).
- History of Early 20<sup>th</sup> cent. Physics, Institut Français De Thessalonique.
- Introduction to the Historiography of Science, Institut Francais De Thessalonique.
- Contemporary Trends in Philosophy of Science (Realism, Rationality, The Turn to Scientific Practice, The Disunity of Science), University of Athens & National Technical University of Athens.
- Hidden Entities in the Physical Sciences of the 18<sup>th</sup> & 19<sup>th</sup> Centuries, University of Athens & National Technical University of Athens.
- The Problem of Theoretical Concepts in Philosophy of Science, University of Athens & National Technical University of Athens.
- The Making of the Atomic Bomb, University of Athens & National Technical University of Athens.
- The Philosophy of Experiment, University of Athens & National Technical University of Athens.

- On the Very Idea of a Conceptual Scheme, University of Athens & National Technical University of Athens (co-taught with Vasso Kindi).
- Styles of Scientific Reasoning, University of Athens & National Technical University of Athens (co-taught with K. Gavroglu and F. Papanelopoulou).
- Scientific Representations: Theories and Models, University of Athens & National Technical University of Athens.
- Scientific Objectivity, University of Athens & National Technical University of Athens.
- History of 20<sup>th</sup> Century Physics, University of Athens & National Technical University of Athens (co-taught with K. Gavroglu).