

Massimiliano Badino

PROFILO PROFESSIONALE

I am an historian and philosopher of science striving to reach the innermost essence of the conceptual, social, and cultural development of mathematical physics from Newton to the present. Or at least a decent cup of tea.

CONTATTI

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Dipartimento di Scienze Umane
Università di Verona
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37129 Verona, Italy

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EDUCAZIONE

Università di Genova

MAR 2000 - MAG 2004

Dottorato in filosofia della scienza

- Supervisor: Evandro Agazzi
- Titolo tesi: I due problemi fondamentali della meccanica statistica
- Voto: lode

Università di Genova

Nov 1993 - Dic 1998

Laurea in filosofia

- Supervisor: Evandro Agazzi
- Titolo tesi: L'epistemologia di Planck nel suo contesto storico
- Voto: 110 e lode e dignità di stampa

ESPERIENZE LAVORATIVE

Università di Verona

FEB 2018 - PRESENTE

RTD-B

- Dipartimento di Scienze Umane
- AOC: Logica, filosofia della scienza, epistemologia
- AOS: Storia e filosofia della scienza

Universitat Autònoma de Barcelona - Massachusetts Institute of Technology

NOV 2014 - OTT 2017

Marie Skłodowska-Curie Fellow

- Mentori: David Kaiser and Agustí Nieto-Galan

Universitat Autònoma de Barcelona

LUG 2012 - GIU 2014

Post-Doctoral Research Fellow

Max Planck Institute for the History of Science

DIC 2011 - GIU 2012

Post-Doctoral Research Fellow

Fritz Haber Institute of the Max Planck Society

GEN 2010 - NOV 2011

Post-Doctoral Research Fellow

Max Planck Institute for the History of Science

GEN 2007 - DIC 2009

Post-Doctoral Research Fellow

- Mentore: Jürgen Renn

Max Planck Institute for the History of Science

GIU 2005 - DIC 2006

Visiting Scholar

LINGUE

Italiano

(Madrelingua)

Inglese

(Full professional proficiency)

Tedesco

(Professional working proficiency)

Spagnolo

(Limited working proficiency)

Catalano

(Limited working proficiency)

Francese

(Elementary proficiency)

INSEGNAMENTO

Logica (M-Fil/02)

FEB 26, 2018 - APR 21, 2018

Università di Verona

Foundamenti di Logica (L-Fil-Let/12)

FEB 26, 2018 - APR 7, 2018

Università di Verona

Kaufman Teaching Certificate

GIU 2015

Massachusetts Institute of Technology

Research and Pedagogy: Textbooks and the History of Quantum Physics (FISC27)

AGO 2014

Universidade Federal da Bahia

- Corso di specializzazione per studenti di dottorato
- Programa de Pós-Graduação em Ensino Filosofia e História das Ciências

Teorie della spiegazione scientifica (M-FIL/02)

APR 2011

Università di Genova

- Seminario alla laurea triennale in filosofia

Metodologia delle scienze umane (M-FIL/02)

MAR 2009

Università di Genova

- Seminario alla laurea triennale in filosofia

PHD SUPERVISION

Candidata: Leyla Mariane Joaquim

29 AGO 2014

Universidade Federal da Bahia

- Titolo tesi: *Disciplinary Encounters. When Physics Meets Biology: Some Historical and Contemporary Perspective.*
- Voto: lode

SERVIZI PROFESSIONALI

Journal Boards

- Advisory Editor di *Isis* (2015-2017).
- Membro del scientific board di *Organon*.

Publisher Boards

- Co-Editor della serie *History of Modern Science*, Brill.
- Co-Editor della serie *Edition Open Sources*, EOA, Berlin.
- Membro del scientific board della serie *Studies and Sources in Political Epistemology*, Edizioni Ca' Foscari, Venice.
- Editor della serie *Meccanismi*, Edizioni Melquiades, Milan.

Referaggio di manoscritti

- *Epistemologia*
- *Physis*
- *Isis*
- *Journal of Philosophy*
- *Foundations of Physics - Letters*
- *Studies in History and Philosophy of Modern Physics*
- *European Physical Journal H*
- *Physics Today*
- *European Journal for Philosophy of Science*
- *Historical Studies in the Natural Sciences*
- *European Journal of Physics*
- *Foundations of Science*
- *British Journal for the History of Science*
- *Archive of History of Exact Sciences*
- *Theoria*
- *Physics in Perspective.*

Referaggio di libri

- Boston Studies in Philosophy of Science
- Oxford University Press
- University of Pittsburgh Press

Referaggio di progetti di ricerca

- Expert reviewer of international research proposals for the National Center of Science and Technology Evaluation, Kazakhstan.
- Member of the selection committee of special issues of *Centaurus*.

Simposia organizzati

- *Mathematical Laboratory / Paper Physics: Concepts, Pedagogy, and Methods of Mathematical Physics*, HSS annual meeting, Chicago, IL, November 6-9, 2014.
- *Circulating Theoretical Physics: Scientific Exchanges between Europe, US, and Latin America*, Three Societies Meeting, Philadelphia, July, 11-14, 2012.
- *Crossing Borders in Quantum Physics*, 4th Conference of the European Society for the History of Science, Barcelona, November 18-20, 2010.
- *Research and Pedagogy. A History of Quantum Physics through its Textbooks I and II* (with Jaume Navarro), HSS annual meeting, Phoenix, AZ November 19-21, 2009.

Conferenze organizzate

- *Joint 3rd International Conference on the History of Physics under the auspices of the European Physical Society and 4th Early-Career Conference for Historians in the Physical Sciences of the American Institute of Physics*, San Sebastian, October 17-21, 2018.
- *Science as Cultural Hegemony - Gramscian Concepts for the History of Science*, Barcelona, January 21-23, 2014.
- *History of Quantum Physics (HQ3)*, Berlin June 28-July 2, 2010.

SOCIETÀ SCIENTIFICHE

- European Society of the History of Science
- Società italiana di logica e filosofia della scienza

RICONOSCIMENTI E GRANTS

Research Professorship

DIC 2016

Ikerbasque Foundation

Posizione cancellate per ragioni amministrative

Marie Skłodowska-Curie International Outgoing Fellowship

DIC 2013

Marie Skłodowska-Curie Actions

Valutazione: 98/100

Premio per dissertazioni in storia della fisica

APR 1999

Accademia Nazionale delle Scienze detta dei XL

Outreach

Articoli

- M. Badino, 2005, "L'Universo: finito, infinito o...?", KOS, 3, 50-55.
- M. Badino, 2003, "Verso una teoria del tutto?", *Golem L'Indispensabile*, 3, Federico Motta Editore.

Web

- Personal blog <https://ihavetoadmitblog.wordpress.com/>
- Personal blog <http://massimilianobadino.com/captains-log/>

Altre iniziative

- Collaborazione con l'editore Castelvechi per produrre una serie di scritti di Max Planck per una larga audience.
- Lezioni popolari al Festival della Scienza di Genova.

Progetti di ricerca

Science, Cultural Hegemony, and Civil Society: Gramscian Concepts for the History of Science

2014 - PRESENT

- Descrizione: International Project of the UAB and the Max Planck Institute for the History of Science
- Finanziamento: Max Planck Institute for the History of Science and CEHIC
- Posizione: Principal Investigator (con Pietro D. Omodeo)

Order/Chaos: Genealogy of Two Concepts in the Culture of European Mathematical Physics

NOV 2014 - OTT 2017

- Descrizione: International Outgoing Fellowship at UAB and MIT
- Finanziamento: Marie Skłodowska-Curie Actions Grant no. PIOF-GA-2013-623536
- Posizione: Principal Investigator

Probability in Quantum and Statistical Mechanics

2011 - 2014

- Descrizione: German-Israeli collaboration between the Max Planck Institute for the History of Science, the Department of Philosophy of Jerusalem, and the Department of Philosophy of Haifa
- Finanziamento: German-Israeli Foundation, Grant no. I-1054-112.4/2009
- Posizione: Research Associate

Research and Pedagogy: A History of Quantum Physics Through its Textbooks

2009 - 2013

- Descrizione: International Project of a network of European and American Universities
- Finanziamento: Max Planck Society
- Posizione: Principal Investigator (con Jaume Navarro)

History and Foundations of Quantum Physics

2006 - 2012

- Descrizione: International Project of a network of European and American Universities
- Finanziamento: Strategic Funds of the President of the Max Planck Society
- Posizione: Research Associate

Interessi di ricerca

- History and philosophy of modern physics, in particular quantum theory, classical mechanics, statistical mechanics, celestial mechanics, chaos theory
 - Scientific realism
 - Concept dynamics and theory change
 - History and philosophy of scientific practices
 - Political epistemology
 - Theories of scientific explanation
 - Order and chaos in mechanics from the Enlightenment
- ERC Sectors: SH4-13; SH3-13; SH6-13

- M. Badino, 2018, "The Discreet Charm of Ontology", *Isis*, **109** (1) 102-105.
- M. Badino, 2018, "And Yet It Stands: The Stability of the Solar System in Eighteenth Century Physical Astronomy", *Historical Studies in the Physical Sciences*, **48** (2) 123-179.
- M. Badino, 2017, "Using, Abusing, and Perusing the Past", *Isis*, **108** (4) 836-840.
- M. Badino, 2017, "What Have Historians of Quantum Physics Ever Done for Us?", *Centaurus*, **58** (4) 327-346.
- M. Badino, 2016, "La strana storia della termodinamica relativistica", *Giornale di Astronomia*, **42** (4) 12-17.
- M. Badino, 2014 "Bridging Conceptual Gaps: The Kolmogorov-Sinai Entropy", *Isonomia*, April.
- M. Badino and B. Friedrich, 2013, "Much Polyphony but Little Harmony: Otto Sackur's Early Take on the Quantum Theory of Gases", *Physics in Perspective*, **15** (3) 295-319.
- M. Badino, 2012, "Productive Conservatism: Planck's Second Theory of Radiation", *Annalen der Physik*, **524** (2) A29-A31.
- M. Badino, 2011, "Mechanistic Slumber vs. Statistical Insomnia: The Early Phase of Boltzmann's H-theorem (1868-1877)", *European Physical Journal - H*, **36** (3) 353-378.
- M. Badino, 2009, "The Odd Couple: Boltzmann, Planck and the Application of Statistics to Physics (1900-1913)", *Annalen der Physik*, **18** (2-3) 81-101.
- M. Badino, 2006, "Pensare l'incerto: la concezione suppesiana della probabilità fra invarianza e pluralismo", *Epistemologia*, **29**, 291-322.
- M. Badino, 2006, "The Foundational Role of Ergodic Theory", *Foundations of Science*, **11**, 4, 323-347.
- M. Badino, 2005, "Il contributo di Khinchin al problema ergodico", *Physis*, **42**, 2, 481-499.
- M. Badino, 2004, "An Application of Information Theory to the Problem of Scientific Experiment", *Synthese*, **140** (3) 355-389.
- M. Badino and N. Robotti, 2001, "Max Planck and the Constants of Nature", *Annals of Science*, **58**, 137-162.
- M. Badino, 2001, "La relazione fra filosofia e storia della scienza e il caso di Max Planck", *Epistemologia*, **24**, 301-338.

- M. Badino, 2018, "Max Planck e la pratica della fisica", in M. Badino (ed.) *Max Planck: L'immagine della scienza. Saggi sulla fisica moderna* (Rome: Castelvecchi), 5-18.
- M. Badino, 2018, "How Typical: The Structure of the Typicality Explanation", in V. Allori (ed.) *Statistical Mechanics and Scientific Explanation: Determinism, Indeterminism and Laws of Nature* (Singapore: World Scientific Publishing), forthcoming.
- M. Badino and J. Navarro, 2018, "Ether: The Many Lives of a Resilient Concept", in J. Navarro (ed.) *Ether and Modernity*, (Oxford: Oxford University Press), forthcoming in September.
- M. Badino, 2016, "How to Make Selective Realism More Selective (and More Realist Too)", in *PSA2016, 25th Biennial Meeting of the Philosophy of Science Association - Conference Volume*, 13-33.
- M. Badino, 2016, "Typicality in Statistical Mechanics: An Epistemological Approach", in L. Felline, A. Ledda, F. Paoli, E. Rossanese (eds.), *New Directions in Logic and the Philosophy of Science*, (London: College Publications), 233-243.
- M. Badino, 2014, "The strange equation of Dr. Sackur and Mr. Tetrode", in E.R.A.C. Giannetto, S. Ricciardo, E. Antonello, M. Mazzoni (eds.), *Cielo Terra. Fisica e Astronomia un antico legame*, (Rome: Aracne), 191-197.
- M. Badino, 2013, "Lottando contro la corrente del tempo. Un lettura delle *Lezioni sulla teoria dei gas*" in *Ludwig Boltzmann: Lezioni sulla teoria del gas*, (Milan: Edizioni Melquiades), 11-49.
- M. Badino and J. Navarro, 2013, "Pedagogy and Research. Notes for a Historical Epistemology of Science Education", in M. Badino, J. Navarro (eds.), *Research and Pedagogy: A History of Quantum Physics through its Textbooks*, (Berlin: Edition Open Access), 7-30.
- M. Badino, 2013, "Dissolving the Boundaries between Research and Pedagogy: Otto Sackur's *Lehrbuch der Thermochemie und Thermodynamik*", in M. Badino, J. Navarro (eds.), *Research and Pedagogy: A History of Quantum Physics through its Textbooks*, (Berlin: Edition Open Access), 103-127.
- M. Badino and B. Friedrich, 2013, "Putting the Quantum to Work: Otto Sackur's Pioneering Exploits in the Quantum Theory of Gases", in S. Katzir, C. Lehner, J. Renn (eds.), *Traditions and Transformations in the History of Quantum Physics*, (Berlin: Edition Open Access), 61-85.
- M. Badino, 2010, "Das Verfolgen einer Idee: Plancks Theorie idealer Gase", in D. Hoffmann (ed.), *Max Planck und die moderne Physik*, (Berlin: Springer), 135-148.
- M. Badino, 2008, Postscript to the entry "Ludwig Boltzmann", *New Dictionary of Scientific Biographies*, 28 vols., (Detroit: Charles Scribner's Sons), vol. 1, 337-339.
- M. Badino and N. Robotti, 2000, "The Search for Universal Constants and the Birth of Quantum Mechanics", in C. Garola, A. Rossi (eds.), *Foundations of Quantum Mechanics: Historical Analysis and Open Questions*, (Singapore: World Scientific Publishing), 343-353.

M. Badino and N. Robotti, 1998, "L'origine della costante h", *Proceedings of XVIII Congresso Nazionale di Storia della Fisica e dell'Astronomia*.

Curatele

M. Badino (ed.), 2018, *Max Planck, L'immagine della scienza: Saggi sulla fisica moderna*, (Rome: Castelvecchi).
M. Badino and P. D. Omodeo (eds.), 2018, *Cultural Hegemony in a Scientific World: Gramscian Concepts for the History of Science* (Amsterdam: Brill), forthcoming.
M. Badino and J. Navarro (eds.), 2013, *Research and Pedagogy: A History of Quantum Physics through its Textbooks* (Berlin: Edition Open Access).

Libri

M. Badino, 2015, *The Bumpy Road: Max Planck from Radiation Theory to the Quantum (1896-1906)* (New York: Springer).
M. Badino, 2010, *Il professore e il suo demone. La lunga lotta di Max Planck contro la statistica* (Milan: Edizioni Melquiades).
M. Badino, 2000, *L'epistemologia di Planck nel suo contesto storico* (Naples: Edizioni Scientifiche Italiane).

Traduzioni

Ludwig Boltzmann, *Lezioni sulla teoria dei gas* (translation and editing of Boltzmann's *Vorlesungen über Gastheorie*) (Milan: Edizioni Melquiades, 2013).
James Clerk Maxwell, *Trattato elementare di elettricità*, (translation from English of Maxwell's *An Elementary Treatise on Electricity*) (Milan: Edizioni Melquiades, 2010).
Ludwig Boltzmann, *Fisica e probabilità*, (Boltzmann's papers of 1872 and 1877 translated from German with introduction, notes and mathematical appendixes) (Milan: Edizioni Melquiades, 2005).

Recensioni di libri

M. Badino, 2016, "John Heilbron, *Physics: A Short History from Quintessence to Quarks*", *British Journal for the History of Science*, **49**, 3, 474-476.
M. Badino, 2015, "Albert Einstein. *The Collected Papers of Albert Einstein Volume 12: The Berlin Years: Correspondence, January-December 1921; Volume 13: The Berlin Years: Writings & Correspondence, January 1922-March 1923*", *Isis*, **106**, 1, 209-211.
M. Badino, 2007, "Frederich Steinle, *Explorative Experimente. Ampere, Faraday und die Ursprünge der Elektrodynamik*", *Isis*, **98**, 4, 857-858.

Conferenze (invito)

"An Unintentional Consequence: The Quantum in the Framework of the 19th Century Physics", American Physical Society Spring Meeting, Los Angeles, March 6, 2018.
"From Here to Eternity: Culture, Mathematical Practices, and the Emergence of Order in 18th Century Celestial Mechanics", Stevin Center for the History of Science and Humanities, March 22, 2017.
"And Yet It Stays: The Stability of the Solar System in 18th Century Physical Astronomy", Harvard PhunDay, Cambridge, MA, October 29, 2016.
"What Have the Historians of Quantum Physics Ever Done for Us?", Keynote Lecture, European Society for the History of Science Meeting, Prague, September 23, 2016.
"The T-word: Reflections on the Historiography of Theories", Inter-University Center Annual Meeting, Dubrovnik, April 13-17, 2015.
"Research and Pedagogy: Textbooks and the History of Quantum Physics", Universidade Federal da Bahia, August 2014.
"How Theories Begin: Max Planck and the Genesis of Quantum Theory", Lectio Commandiniana, Urbino, April 23, 2013.
"L'entropia di Kolmogorov-Sinai e le sue conseguenze per il caos e la teoria dell'informazione", XV Summer School in Philosophy of Physics, Cesena, September 19-24, 2012.

"Pursuing an Idea: Planck's Quantum Theory of Ideal Gas", Planck-Symposium auf der Frühjahrstagung der Deutsche Physikalische Gesellschaft, Berlin, February 28, 2008.
"Il corifeo della fisica classica. L'avventura scientifica di Ludwig Boltzmann", The Revolution in Microphysics: 100 years of the death of Ludwig Boltzmann, Florence, September 5, 2006.

Interventi

"Schooling the Quantum Generations: Textbooks and Quantum Cultures from 1900 to the 1930s", 25th International Congress of History of Science, Technology, and Medicine, Rio de Janeiro, July 29, 2017.
"Realism, Continuity, and the Historiography of Science", Triennial Conference of the Italian Society of Logic and Philosophy of Science (SILFS), Bologna, 22 June 2017.
"How to Make Selective Realism More Selective (and More Realist Too)", Philosophy of Science Association Biannual Meeting, Atlanta November 4, 2016.
"How Lagrange Saved the Universe. The Forgotten Narrative on the Stability of the Solar System", European Society for the History of Science Meeting, Prague, September 22, 2016.
"How to Make Selective Realism More Selective (and More Realist Too)", 6th Meeting of Integrated History and Philosophy of Science (&HPS6), Edinburgh, July 4, 2016.
"Stability and Scientific Realism: The Coming of Age of Perturbation Theory", 6th Meeting of the Society for the Philosophy of Science in Practice, Glassboro, NJ, June 17, 2016.
"If You Can Calculate It, Then It's Real: The Coming of Age of Perturbation Theory", The History of Science and Contemporary Scientific Realism", Indianapolis, February 20, 2016.
"How Typical! An Epistemological Analysis of Typicality in Statistical Mechanics", 15th Congress of Logic, Methodology and Philosophy of Science, Helsinki, August 5, 2015.
"Hegemony and History of Science", Past and Present. Philosophy, Politics, and History in the Thought of Gramsci, London, June 18-19, 2015 (with Pietro D. Omodeo).
"Boltzmann in Oxford: How Mathematics Molds Physical Concepts", HSS, Annual Meeting, Chicago, IL, November 6-9, 2014.
"How Typical: Genealogy of a Concept", Triennial Conference of the Italian Society of Logic and Philosophy of Science, Rome, June 18-20, 2014.
"How Typical: Genealogy of a Concept", 24th International Congress of History of Science, Technology and Medicine, Manchester, July 21-28, 2013.
"A Tale of Two Problems or How US Joined Together What Europe Had Put Asunder", 5th Conference of the European Society for the History of Science, Athens, November 1-3, 2012.
"A Tale of Two Problems or How US Joined Together What Europe Had Put Asunder", Three Societies Meeting, Philadelphia, PA, July 11-14, 2012.
"How Theories Begin: Max Planck and the Genesis of Quantum Theory", 4th Meeting of Integrated History and Philosophy of Science (&HPS4), Athens, March 15-18, 2012.
"A Bridge over Trouble Waters: Max Planck's Use of Abstract Spaces", HSS Annual Meeting, Cleveland, OH, November 3-6, 2011.
"Pedagogy and Research. Notes for a Historical Epistemology of Science Educations", 11th International IHPST Conference, Thessaloniki, 1-5 July 2011 (with Jaume Navarro).
"How Theories Begin: Max Planck and the Genesis of Quantum Theory", Continuity and Discontinuity in the Physical Sciences since the Enlightenment, College Park, MD, 28-31 July 2011.
"Across the Disciplinary Divide: Otto Sackur from Physical Chemistry to Quantum Physics and Back", 4th Conference of the European Society for the History of Science, Barcelona 18-20 November 2010.
"Research and Pedagogy: A History of Quantum Physics Through the Textbooks", History of Quantum Physics (HQ3), Berlin, 28 June - 2 July 2010 (with Jaume Navarro).
"Putting the Quantum to Work: Otto Sackur's Pioneering Exploits in the Quantum Theory of Gases", History of Quantum Physics (HQ3), Berlin, 28 June - 2 July 2010 (with Bretislav Friedrich).
"Against the Wind: Otto Sackur and his Daring Lehrbuch der Thermodynamik und Thermochemie", HSS Annual Meeting, Phoenix, AZ, November 19-21, 2009.
"La strana equazione del dr. Sackur e di mr. Tetrode", XXIX Congresso Nazionale di Storia della Fisica e dell'Astronomia, Arcetri, September 16-18, 2009.
"Converging Differences: The Debate on the Quantum Theory of Ideal Gas", History of Quantum Physics (HQ2), Utrecht, July 14-17, 2008.
"A Quantum Melting Pot: The Origin of the Quantum Theory of Ideal Gas", Three Societies Meeting, Oxford, July 4-6, 2008.
"I solidi ignoti: Ascesa e declino dell'Eigenschwingungen Methode", XXVIII Congresso Nazionale di Storia della Fisica e dell'Astronomia, Bergamo, June 25-28, 2008.
"The Odd Couple: Boltzmann, Planck and the Application of Statistics to Physics (1900-1913)", History of Quantum Physics (HQ1), Berlin, July 2-6, 2007.