

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*

Program of the Early-Career Conference

17-20 October 2018
Donostia - San Sebastian

Organizing Committee:

Jenifer Barton, University of Toronto

Joanna Behrman, Johns Hopkins University

Gabriel Henderson, AIP Center for History of Physics

Jean-Philippe Martinez, Universidade Federal da Bahia

Gustavo Rodrigues Rocha, Universidade Estadual de Feira de Santana

Conference planning supported by:

The Center for History of Physics (American Institute of Physics)

Donostia International Institute of Physics

European Physical Society

echophysics – European Centre for History of Physics

EPJ.org – European Physical Journal

IOP – Institute of Physics

Wednesday 17th October

Centro Santamaria – Plaza de Elhuyar, 2

16:00	Welcome and practical arrangements (Early Career)
16:30 – 18:00	<i>HUMANISM AND FEMINISM</i> Chair: Hasok Chang (University of Cambridge) <u>Eleonora Loiodice</u> (Università degli Studi di Bari) <i>When boundaries don't divide, they unite. Giorgio Diaz De Santillana: a Humanistic Physicist.</i> <u>Isabelle Priscila Lima</u> and <u>Maria Cristina Martins Penido</u> (Universidade Federal da Bahia) <i>Towards a feminist historiography of science: A Nuclear Fission narrative</i> <u>Angevaldo Filho</u> (Universidade Federal da Bahia) <i>For a history of women in science: The contribution of Chien Shiung Wu to a quantum theory</i>
18:00 – 19:30	Cocktail/dinner/social
19:30 – 20:30	<i>PLENARY LECTURE EARLY CAREER CONFERENCE</i> <u>Hasok Chang</u> (University of Cambridge) <i>Where can the historian of science stand? Presentism and philosophy in the historiography of science</i>

Thursday 18th October (AM)

Centro Santamaria

09:30 – 11:00	<i>EARTH SCIENCES</i> Chair: Gregory Good (AIP Center for History of Physics) <u>Evangelia Chordaki</u> (Hellenic Open University) and <u>Antigoni Lazopoulou</u> (National and Kapodistrian University of Athens / National and Technical University of Athens) <i>Shaping Meteorology in Greece: The case of Hellenic National Meteorological Service (HNMS)</i>
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	<p><u>Daniella McCahey</u> (University of California) <i>Situating Geophysical Research Stations in Antarctica</i></p> <p><u>Jenifer Barton</u> (University of Toronto): Wiring the World Together: The Bretherton Diagram and the Making of Earth System Science</p>
11:00 – 11:30	COFFEE BREAK
11:30 – 13:00	<p><i>EARLY CAREER ROUNDTABLE</i></p> <p>Animated by <u>Gregory Good</u> (Director of the AIP Center for History of Physics), with <u>Thiago Hartz</u> (Universidade Tecnológica Federal do Paraná), <u>Daniella Monaldi</u> (York University, Toronto) and <u>Climério Paula da Silva Neto</u> (Universidade Federal do Oeste da Bahia).</p> <p><i>Perspectives and Challenges in the Historiography of the Physical Sciences</i></p>
13:00 – 15:00	LUNCH

Thursday 18th October (PM)

Palacio de Miramar

15:00 – 15:30	Welcome for all (Early Career and European Physical Society)
15:30 – 17:30	<p><i>CONCEPTS OF PHYSICS</i></p> <p>Chair: Gabriel Henderson (AIP Center for History of Physics)</p> <p><u>Adwait Parker</u> (Stanford University) <i>The Forces Compose: a neglected aspect of the critical reception of Newton's Principia</i></p> <p><u>Alessio Rocci</u> (University of Padova) <i>Albert Einstein and the physical meaning of the fifth dimension</i></p> <p><u>Markus Ehberger</u> (Technische Universität Berlin) <i>An inventory of the virtual: Notions of virtuality in quantum mechanics and quantum electrodynamics before renormalization</i></p> <p><u>Laura Bujalance</u> (Universidad Camilo José Cela) <i>The status of the modes of physical action. Whose business is this?</i></p>
17:30 – 18:00	COFFEE BREAK

18:00 – 19:30	<p><i>PLENARY LECTURE EARLY CAREER AND EUROPEAN PHYSICAL SOCIETY</i></p> <p>Patricia Fara (Clare College, Cambridge) <i>Expanding Horizons: Science, Suffrage and Equality</i></p> <p><i>ROUNDTABLE PHYSICS AND GENDER:</i> Patricia Fara (Clare College, Cambridge) Gisela Mateos (Universidad Nacional Autónoma de México) Xavier Roqué (Universitat Autònoma de Barcelona) Maria Rentetzi (National Technical University of Athens) Maia Garcia-Vergniory (Ikerbasque Basque Foundation for Science)</p>
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Friday 19th October (AM)

Palacio de Miramar

10:00 – 11:00	<p><i>SCIENCE IN CONTEXT – NETWORKS</i></p> <p>Chair: Joanna Behrman (Johns Hopkins University)</p> <p><u>Miguel Palomo</u> (University of Seville) <i>Phosphorus, Geometry and Talking Dogs. Leibniz's Attempts to Work in the Académie des Sciences</i></p> <p><u>Raphael Schlattmann</u> (Technische Universität Berlin) <i>Relativity in relation: Hans-Jürgen Treder's intellectual network between Marxism-Leninism and gravitational research in the early SOZ/GDR</i></p>
11:00 – 11:30	COFFEE BREAK
11:30 – 13:30	<p><i>SCIENCE IN CONTEXT – PRACTICES</i></p> <p>Chair: Jenifer Barton (University of Toronto)</p> <p><u>Rudolph Bierent</u> (Université Paris 7 – Paris Diderot) <i>Oriental philosophy meets with Western science : how Russia decided to conquer space at the very beginning of the twentieth century</i></p> <p><u>Agustín Ceba Herrero</u> (University of the Balearic Islands): <i>Photographic emulsions and the rise of Nuclear and Particle Physics in Spain (1950-1970)</i></p> <p><u>Eckhard Wallis</u> (Sorbonne Université) <i>Pumping clocks, keeping time: French atomic physicists and their way into time metrology, 1950-70</i></p>

	<p>Grigoris Panoutsopoulos and Theodore Arabatzis (National and Kapodistrian University of Athens) <i>CERN's Balancing Act: Between Unity and Disunity</i></p>
13:30 – 15:00	LUNCH

Friday 19th October (PM)

Palacio de Miramar

15:00 – 17:00	<p>QUANTUM MECHANICS AND FOUNDATIONS OF PHYSICS Chair: Jean-Philippe Martinez (Universidade Federal da Bahia)</p> <p>Aaron Wright (Stanford University) * (Telecommunication) * <i>Dirac's Compton Effect: Always Relativistic and Always Solid State</i></p> <p>Joana Ibáñez and Enric Pérez (Universitat de Barcelona) <i>The Italian Route to Quantum Statistics</i></p> <p>Luigi Romano and Augusto Garuccio (Università degli Studi di Bari) <i>Franco Selleri and His Contribution to the Starting of Debate on Foundations of Quantum Mechanics: 1969-1979.</i></p> <p>Flavio Del Santo, Emanuel Schwarzhans (University of Vienna) and Maria Irakleidou (Vienna University of Technology) <i>Foundations of Physics at the University of Vienna in Social-Historical Perspective</i></p>
17:00 – 17:30	COFFEE BREAK
17:30 – 19:00	<p>GENERAL DISCUSSION Animated by the members of the Organizing Committee</p>
19:00 – 20:00	<p>PLENARY LECTURE EARLY CAREER AND EUROPEAN PHYSICAL SOCIETY – PhycisEstoire Prize</p> <p>Jim Bennett (Oxford University) <i>Looking for Physics in the History of Science before Maxwell</i></p>

Saturday 20th October (AM)

Palacio de Miramar

9:00 – 11:00	<p>FRONTIERS WITH PHILOSOPHY</p> <p>Chair: Gustavo Rodrigues Rocha (Universidade Estadual de Feira de Santana)</p> <p>Ashton Green (University of Notre Dame) <i>Towards the Consistency of Coordination Rules: A Lesson from Reichenbach and Cassirer</i></p> <p>Quentin Rodriguez (Université Clermont-Auvergne) <i>Is There Anything New with Statistical Physics Explanations?</i></p> <p>Rocco Gaudenzi (Max Planck Institute for History of Science) <i>Mesoscopic physics' concepts into the reductionist search for a unified theory: A study of the analogy in action through the figure of Yoichiro Nambu</i></p> <p>Nuria Muñoz (Max Planck Institute for History of Science) <i>Emergence: Real or apparent opposition to the Final Theory?</i></p>
11:00 – 11:30	COFFEE BREAK
11:30 – 13:00	<p>PLENARY LECTURE EARLY CAREER AND EUROPEAN PHYSICAL SOCIETY – HISTORY OF EPS</p> <p>Roberto Lalli (Max Planck Institute of Berlin) <i>Crafting Europe (from CERN to Dubna): The foundation of the European Physical Society between science and Politics</i></p> <p>ROUNDTABLE HISTORY OF EPS: Roberto Lalli (Max Planck Institute of Berlin) Rüdiger Voss (President of the EPS) Christophe Rossel (Former President of the EPS) John Dudley (Former President of the EPS)</p>
13:30 – 15:00	LUNCH

Saturday 20th October (PM)

15:30 : Buses to Bergara for the Celebrations of the town as European Historic Site of Physics with the presence of the Basque President and other local and regional authorities. Farewell dinner. Arrival back in Donostia/San Sebastian before 10pm.

WHERE CAN THE HISTORIAN OF SCIENCE STAND? PRESENTISM AND PHILOSOPHY IN THE HISTORIOGRAPHY OF SCIENCE

Hasok Chang
University of Cambridge

A prevalent ideal of history as an objective description of the past has served to remove the *historian* from our historiographical thinking. The idea of writing about the past purely in its own terms is not only ultimately unachievable, but it also leads us away from thinking about the very purpose of historical work. Instead, I advocate a conscious and critical presentism, which is unafraid to admit that history-writing is for the living, and conscious of the benefits for the present that can come from understanding the past. When I ask why history of science is needed at all, my own answer inclines strongly toward pluralism: the historian's job is to illuminate aspects of the past of science that scientists themselves ignore. Through such historical work we may aid scientific progress, broadly conceived — by recovering lost empirical facts and theoretical perspectives from past science, by pointing to the roads-not-taken that constitute potential directions for new developments, by exposing unrecognized biases and assumptions in present science inherited from the past, by assessing the merits of various methodologies and patterns of development, by recalling valuable connections between science and other human endeavors, and by highlighting neglected ethical and social implications of scientific work. There are some clear implications of these thoughts for our day-to-day practices as historians. All of these points will be illustrated and developed with reference to a number of examples from the history of the physical sciences.

EXPANDING HORIZONS: SCIENCE, SUFFRAGE AND EQUALITY

Dr Patricia Fara

Clare College, Cambridge, UK

2018 marks a double centenary: peace was declared in war-wracked Europe, and British women won the vote after decades of struggle. To commemorate these anniversaries, this talk presents some previously untold lives of female scientists, engineers and doctors who helped to win the War. Confronting danger, prejudice and disease, they successfully took over men's positions in factories, laboratories and hospitals, both at home and overseas. After the Armistice, as returning soldiers reclaimed their jobs, the old stereotypes returned and women were squeezed out once again. But like the rest of the world, Britain had changed forever: now the nation knew that women were fully capable of performing work traditionally reserved for men. Even so, many professional women felt that although they could vote, they were second-class citizens – and such inherited attitudes still affect science today.

CRAFTING EUROPE (FROM CERN TO DUBNA): THE FOUNDATION OF THE EUROPEAN PHYSICAL SOCIETY BETWEEN SCIENCE AND POLITICS

Roberto Lalli

Max Planck Institute of Berlin

The year 1968 is universally considered a watershed in history, as the world experienced an accelerated growth of anti-establishment protests with long-lasting impacts on the cultural, social and political spheres of human life. Amidst this social and political unrest across the globe, on September 26th of the same year sixty-two physicists gathered at CERN to found the European Physical Society (EPS). Among these, there were the official representatives of the national physics societies of seventeen countries of both East and West Europe. By 1972, the national societies of virtually all European countries, but Hoxha's Albania and Greece under the military junta, had become members of the society, which also included the Turkish Physical Society and the Israel Physical Society. According to the main proponent of the initiative, Italian physicist Gilberto Bernardini, this success was the realization of a "dream": the institutional formation of a single European physics community, which was a representation of a culturally unified European "nation." In Bernardini's later reconstruction of the foundation of the EPS, the political and social motivations figure prominently: the establishment of the society was a successful use of physics to overcome the political divides of the Cold War in order to strengthen European cultural unity and address societal concerns.

The analysis of yet unexplored archival materials of Bernardini and other protagonists in the establishment of the society allows to challenge this reconstruction by thoroughly investigating the balance between political motivations and socio-professional interests of a specific community, mostly related to the CERN environment. While the actors clearly understood the strong political character of the endeavor, a main rationale for the creation of the EPS was the need to solve specific issues concerning the publication venues as well as the future possibilities of cooperation and education of European physicists who still felt disadvantaged with respect to their colleagues working in the US. In proposing a more balanced view of how the political and scientific matters combined in the foundation of the society, I shall discuss the problems, organizational as well as political, the members of the Steering Committee had to face in order to realize this project. In doing so, the paper focuses on the perception of CERN as a role model in international cooperation that could be exported to other branches of physics, on the need to define the boundaries of Europe as represented by this society, on the possible international scientific institutions that served as inspirations to actuate the idea, on how the political and scientific problems were addressed in defining the structure of the society. This perspective will allow to draw some considerations concerning how the discussed dynamics were embedded in the long-term processes of the European integration and the Cold War as well as in the ongoing socio-political transformation.