

## GP 6: Physicists as Popularisators

Chair: Julia Blömer

Time: Tuesday 16:15–17:15

Location: GP-H7

GP 6.1 Tue 16:15 GP-H7

**The role of aesthetics in science communication: History and histories in Werner Heisenberg's popular writings** — ●ELENA SCHAA — Trinity College Dublin, Dublin, Ireland

In 1969, Werner Heisenberg published his memoir *Der Teil und das Ganze. Gespräche im Umkreis der Atomphysik*. Driven by the motivation to empower the lay audience to engage in the "philosophical, ethical, and political discussions" arising from modern physics, he sets out to share his recollections of the development of modern physics.

Departing from a close examination of Heisenberg's bestseller, the paper discusses how Heisenberg used history and historicization to communicate physics beyond the scientific community while taking on a double role as a spectator and a narrator of the history of physics. The paper analysis first, the different ways history becomes relevant Heisenberg's narratives. Secondly, focusing on the form of his popular writings, the paper highlights the interference of science and religion, specifically the Romantic aesthetics of immediate experience of nature and knowledge production. Ultimately, I situate Heisenberg's communication of physics in the wider context of the German *Bildungsbürgertum* together with the masculine ideal of academic authority within which his popularisation of modern physics becomes effective.

GP 6.2 Tue 16:35 GP-H7

**Writing History as a Way to Teach Physics: Edmund T. Whittaker's two editions of the *A History of the Theories of Ether and Electricity*, 1910 and 1951-3.** — ●JAUME NAVARRO — University of the Basque Country, Spain

At the end of his career as a physicist and mathematician, Edmund T. Whittaker (1873-1956) decided to prepare a second, much enlarged version of his by then classic 1910 book *A History of the Theories of Ether and Electricity*. While the first edition had received nothing but praise, the second, two-volume edition had mixed reviews, especially due to its treatment of Einstein's role in the development of special relativity. In a recent paper I have analysed the reasons behind his moderate portrayal of Einstein in the history of twentieth century physics (Navarro 2021). Yet, much has to be studied about the role

both editions played in the teaching of physics to generations of physicists, historians of physics and physics aficionados. In this paper I intend to track the implicit agendas of Whittaker in the two editions of his book and the ways they were received. I shall argue that *A History of the Theories of Ether and Electricity* had an historiographical vision on how to use history to teach the contents of physics, to shape a discipline at a time of profound transformations and to portray physics as a collective and non-teleological enterprise. The highly unexplored correspondence with his son, the also mathematician John Whittaker, helps us give this more complex picture of the *A History of the Theories of Ether and Electricity*.

GP 6.3 Tue 16:55 GP-H7

**Spacetime as popularised by Arthur S. Eddington** — ●FLORIAN LAGUENS — IPC-Facultés Libres, 70 avenue Denfert-Rochereau, 75014 Paris, France

Arthur S. Eddington (1882-1944) certainly was the world's most famous astronomer during the interwar period. For thirty years he was the director of Cambridge Observatory and a Fellow of Trinity College. He also plunged into philosophy while discovering Einstein's general relativity in 1916. From then on, he developed some personal thoughts about physics, its methods and its limits. Along with widely acclaimed scientific treatises, Eddington published some controversial books such as *The Nature of the Physical World* (1928), *Relativity Theory of Protons and Electrons* (1936) and *The Philosophy of Physical Science* (1939). In particular, *The Nature of the Physical World* is still considered a masterpiece regarding the popularisation of general relativity theory and quantum mechanics. Indeed, spacetime is discussed at length in several chapters. This paper intends to highlight, thanks to key passages of Eddington's works, his very conception of popularisation. It then allows to exemplify its role in helping both students and colleagues coping with the relativity major conceptual changes. Finally, Eddington's attitude towards popularisation reveals is way of considering the relationship between physics and mathematics. All in all, as he replies to some critics, his aim is to "convey exact thought in inexact language" (*New Pathways in Science*, 1935).