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THE EUROPEAN PHYSICAL JOURNAL H

Editorial

This is the first issue of a new part of *The European Physical Journal* devoted to the *Historical Perspectives on Contemporary Physics*; briefly EPJ H.

For the first time, a journal addressing the history of physics and the birth of its underlying concepts is now established as an integral part of a core physics publishing platform. This already emphasizes that those issues are a necessary part of modern physics. The knowledge of the historical and philosophical background provides independence from the prejudices of the highly specialized scientist and will keep active researchers open-minded. This is particularly true nowadays, when, alongside the reductionist approach championed over the centuries, the emerging paradigms of complexity and system sciences are providing new opportunities and frameworks for the natural sciences, physics in particular.

Since we see EPJ H as a physics journal, we believe that most of our authors and readers will be physicists but we also heartily invite historians of science to contribute. To make EPJ H a success we need their professional expertise on how to present and interpret historical facts and sources.

Researchers are interested in the struggles and accomplishments, but also in the mistakes and false leads of the past, as these may be instructive for their own work. Many of the old ideas, some of them abandoned long ago, could actually be of help in tackling current problems. Often the momentum involved in creating fashionable theories, with their new look at old problems, brings with it the danger of rushing into new dead ends. Here, the study of the history of physical thinking, and some of the philosophical reflections, may serve to alert active researchers to such dangers. Therefore it is valuable for physicists with their deep insight into technical details to regularly analyze the development – also the rise and fall – of ideas and concepts, especially in the context of evolving physics research. As for any other scientific endeavor, this study and analysis will benefit from discussions on a regular basis in a modern physics forum such as *The European Physical Journal*.

A second purpose of the journal is to serve as a bridge between the working physicists and the professional historians and philosophers of science. In this sense, the periodical can be viewed as a place to trade ideas and exchange knowledge. Historians and philosophers of science know sufficient mathematics and physics to be able to write about classical physics, including relativity, in a competent way. Likewise, the corresponding experimental setting is one they can easily grasp. This situation changes dramatically when it comes to

modern quantum physics. Not only theory, but also experiments and observations now become so involved that a deeper understanding of the fundamental ideas requires the help of physicists who, through their own research – e.g. as participants of complex experiments only possible in a large collaboration – are familiar with the ramifications of quantum physics of the last half-century or with the highly technical mathematics needed for modern theory building. Hence, historians will benefit from the physicists' own analysis of their quest for a better understanding of their field.

Accordingly and importantly, the journal will not insist in a particular style of presentation. The physicists may write in the way they are accustomed to and, likewise, the historians and philosophers can apply the rules of their trade. Articles can be as non-technical or as technical as they need to be, both in terms of their mathematical content and in relation to the technical jargon a community uses to convey precise meanings. However, in the latter case, the editors of this journal will insist that a substantial non-technical introduction (and conclusion) is provided.

Given that the language of the journal is English, a third main feature will be translations of documents of historical interest initially written in a different language. As well as making important and interesting texts more widely known, their contents will be put into context by careful annotations and, of course, archived.

EPJ H's scope emphasizes themes from physics and astrophysics, in particular quantum field theory and particle physics, cosmology and quantum gravity; also statistical mechanics and nonlinear dynamics, particularly in relation to complexity science and even applications outside core physics. It emphasizes modern physics but without explicitly excluding pre-twentieth-century physics. EPJ H will also be glad to receive papers discussing experimental physics including instrumentation or, eventually, the history of an important laboratory. Demonstrating the strong intertwining of theoretical and empirical work should be seen as the backbone of the entire endeavor of concept building.

EPJ H concentrates on the history of physics proper and only as far as necessary on the social history of its players. EPJ H is not a journal on the foundations of physics, not a forum for new results or ideas at the forefront of research. Rather it attempts to explain and analyze progress in terms of the evolution of thinking and our past ideas about the physical world.

As a whole then, EPJ H will help physicists to better understand their own culture, thereby improving present day research work. At the same time, it will pave the way for historians' and philosophers' future studies.

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