



**Observing, sensing,
detecting: Toward a multi-layered picture of the Universe from historical and
epistemological perspectives**

International on-line Workshop – 4-5 February 2021

Organized by the *Italian Society for the History of Physics and Astronomy* (SISFA)
with the endorsement of the *IAU Commission C3* (History of
Astronomy) and of the *History of Physics Group* of the *European
Physical Society*

During the twentieth century, the opening of new observational windows has unveiled a broad range of astrophysical sources, environments, and phenomena, also probing the earliest moments of our Universe and its dark side. The brand-new field of gravitational-wave astronomy—together with electromagnetic telescopes, and neutrino and cosmic-ray detectors—are now offering the opportunity to explore the Universe through multiple kinds of messengers, allowing to address a number of fundamental questions and to peer further in its origin, evolution, and future.

The ushering of this new era brings to the fore the need for a wide-ranging historical and epistemological analysis on the birth and development of multi-wavelength astronomy, up to the inauguration of multi-messenger observation of the cosmos. The processes that have shaped the new astronomies have seen the emergence of new fields of research and new forms of scientific collaboration, often at the interface of different disciplines and skills. Although several historians of science and scientists have provided historical analyses and reviews concerning various aspects of these processes, a coordinated study is now desirable that puts the global evolution of new astronomies in a general and long-term perspective.

Thanks to the participation of numerous scholars engaged on these fronts of historical-scientific research, the workshop will address such a goal by bringing together a broad range of topics. In particular: the entanglement between the emergence of ever more precise questions and the development of cutting-edge technologies, the contamination between different scientific fields and communities, the transition to Big Science, the evolving nature of international collaborations and their changing geopolitical scenarios.

The final round table, on February 5th, will be a very special opportunity for discussion with some of the leading experts in their respective fields:

Barry Barish (University of California, Riverside)

Reinhard Genzel (Max Planck Institute for Extraterrestrial Physics, Garching)

Malcolm Longair (Cambridge University)

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Christian Spiering (DESY)

Alan Watson (University of Leeds)

It will be possible to follow the workshop as auditors. Detailed instructions will be given on this webpage: <http://www.sisfa.org/observing-sensing-detecting/> .

As anticipated in the call for abstracts, a special issue proposal for *Centaurus* will be based on the workshop and prepared in the next months, which will include some selected contributions (maximum 12).

Organizing committee:

Luisa Bonolis, Max Planck Institute for the History of Science

Roberto Lalli, Max Planck Institute for the History of Science

Adele La Rana, University of California Riverside; University of Verona