

Special Issue

Innovative Experimental Techniques for Direct Dark Matter Detection

Message from the Guest Editors

Astronomical and cosmological observations strongly support the existence of dark matter (DM) in the Universe. However, it has yet to be observed and its nature—its mass and interaction—revealed. In recent years, the experimental progress has been impressive, exploring a large range of masses and cross sections. New experiments based on innovative detection techniques are currently being proposed, and will soon reach unprecedented sensitivity. The aim of this Special Issue is to collect contributions for a discussion on the experimental techniques for DM detection. The scope is to describe the state of the art and the future perspectives of direct DM experiments, with a particular attention paid to innovative detection techniques. Topics of interest include, but are not limited to, the following areas: new detector technologies, experimental techniques exploiting additional interaction mechanisms, innovative event reconstruction, improved background modelling, and analysis strategies to enhance the sensitivity.

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The realization of dedicated instrumentation has always been a collateral aspect of experimental research. In addition, many groups dedicate efforts and resources solely to the development of new devices, sensors, equipment and large infrastructure, theoretical and numerical studies, and novel experimental methodologies. With *Instruments* we wish to address both established and emerging communities, also to favor the creation of innovative trans-disciplinary approaches. We see *Instruments* as an exciting high-impact journal that will soon hold a leading position in disseminating cutting edge scientific and technological research.

Editor-in-Chief

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