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Optical Resonators for Precision Metrological Devices

Guest Editor:

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Deadline for manuscript submissions:
closed (30 April 2024)

Message from the Guest Editor

In the past decades, optical resonators have been demonstrated to be capable of measuring extremely small perturbations. By manipulating the dispersion spectrum experienced by the laser field inside an optical resonator, the sensitivity of such a device can be improved further.

Recently, efforts have been dedicated to improving sensitivity and bandwidth while reducing the dimensions of optical-resonator-based sensing devices. However, quantum noise analysis of active dispersive optical resonators, which is crucial for sensing devices, is still under investigation.

Future advances would lead to more practical and miniaturized accelerometers, gyroscopes, and detectors for fundamental physics research. This Special Issue will focus on the development of metrological devices with high precision utilizing active or passive optical resonators for inertial gyroscopes, gravitational wave detection, and dark matter search. Researchers are invited to submit their contributions to this Special Issue. Potential topics include (but are not limited to):

optical resonators

nonlinear optics

light–atom interaction

laser gyroscopes

interferometers

white light cavity

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Special Issue