



CRC 1227
Designed Quantum States of Matter



GUEST LECTURE

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(Guest of Prof. Dr. K. Hammerer)

Leibniz Universität Hannover
DQ-mat Colloquium
10 December 2020, 3.30 pm
(via Zoom-Meeting)

"Calcium beam optical frequency standards and active optical clocks"

Optical clocks enabling the frequency measurement to reach an unprecedented level of precision promotes a various fields of science and technology. This report will introduce the progress of compact Ca beam optical frequency standards and active optical clocks, and discuss their next step of development. The report will start with a brief introduction of the optical clocks, then comes to a description of the compact optical frequency standards based on thermal calcium beam with electron-shelving detection, following a novel interferometry technique, named as velocity-grating Ramsey-Borde spectroscopy. The second part will be devoted in describing the 15 years development of active optical clocks, focused mainly on the active optical frequency standards based on four-level scheme and the Faraday active optical clock scheme, with thermal and cold atoms under planning.

All DQ-mat members and all interested
are cordially invited to attend.