Universität Bern
Institut für Angewandte Physik
Sidlerstrasse 5
3012 Bern, Schweiz

Telefon:+41 31 684 89 11
E-Mail: iapemail.iap@unibe.ch
www.iap.unibe.ch

UNIVERSITÄT BERN

Seminar über Laser Physics and Ultrafast Photonics

Referent: Dr. Hannah Tomio, IAP, University of Bern

Titel: Laser Metrology in Space

This talk will introduce two concepts in space-based laser metrology: the integration of ranging and time transfer capabilities into increasingly prevalent space optical communication networks (exemplified by SpaceX's Starlink), and the use of frequency combs to photonically generate low noise RF and microwave frequencies for distributed coherent sensing applications (such as Very Long Baseline Interferometry, VLBI).
Towards the former, we present the implementation and results of the NASA Laser Communications Relay Demonstration (LCRD) spacecraft "optimetrics" experiment, which demonstrates sub-cm level ranging on an existing optical communication link between the LCRD spacecraft and ground. For the latter, we describe the development of a comb and cavity-stabilized laser-based RF frequency reference for a proposed space-based VLBI concept.

Zeit: Thursday, Febrary 26, 2026, 11.15 Uhr

Ort: **Room B116**, ExWi, Sidlerstrasse 5, Bern, Schweiz