



Graz Advanced School of Science
PHYSICS COLLOQUIUM OF THE UNIVERSITY OF GRAZ AND
THE GRAZ UNIVERSITY OF TECHNOLOGY

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Nanophotonics meet Optical Fibers: a flexible concept for single-virus sensing, achromatic light focusing and optical trapping

Optical fibers provide a waveguide platform with unique advantages, especially in the fields of bioanalytics and life sciences. In this talk, I will report our recent results on fibers (i) that are interfaced with nanostructures and (ii) that are used for the characterization of single-nanoobjects through nanoparticle tracking analysis. In detail, I will report on the optical trapping of microspheres and bacteria with only one single-mode fiber by interfacing nanoprinted meta-lenses with single-mode fiber. In addition, I will show that nanopillar-based metasurfaces can be interfaced with fiber for achromatic light focussing across the entire telecommunication range. I will also report on fibers that include longitudinal liquid filled nanochannels, used to characterize the diffusion of biologically-relevant nano-objects such as plasmonic nanospheres, artificial polymer beads or viruses through employing image-based tracking and mean-square displacement analysis.

Date: Tuesday, 21 March 16:15

Location: Lecture Hall 05.01, Institute of Physics, University of Graz, Universitätsplatz 5

Host: Thomas Weiss

For a regularly updated colloquium program see: <https://www.if.tugraz.at/colloquium.html>