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# Nonlinear phenomena in gas-filled hollow-core fibers

**Dr. Riccardo Piccoli**

*Weizmann Institute of Science, Israel*

**Wednesday 23 June 2021**

**11:00 AM**

**Online Meeting (ZOOM) ID: 822 5669 2345**

**Passcode: 633103**

High-energy ultrashort optical pulses have opened new avenues in the investigation of ultrafast and strong-field-driven phenomena. However, the direct generation of such pulses, from visible to terahertz (THz) frequencies, is still very challenging and requires broadband spectra not directly available from common laser gain media. In this seminar, we will see how gas-filled hollow-core fibers can be successfully employed in a vast variety of situations including extreme pulse broadening and compression, ultrabroadband THz generation, and extreme Raman red-shift.

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Riccardo Piccoli received the B.Sc. (2009), M.Sc. (2011), and Ph.D. (2014) degree in electronics engineering from University of Pavia on the design and characterization of laser sources. During this Ph.D., he also spent a 6-month period at Swansea University (UK). In February 2015, he joined the INRS-EMT Research Center (Canada) as Postdoctoral Fellow where he was investigating different fields including THz science, metasurfaces and plasmonic nanostructures from visible to THz frequencies, as well as nonlinear phenomena in gas-filled hollow-core fibers. Soon after a brief visiting period at the Max-Planck-Institut für Kernphysik (Germany), he joined in October 2020 the Weizmann Institute of Science (Israel) as a Senior Researcher, where he is investigating strong-field and attosecond processes in solids. To date, Dr. Piccoli has published 28 papers, more than 70 conference contributions and seminar talks, and filed 4 patent applications.

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