



**27.01.2022 - 10 h**

At Zoom virtual meeting: <https://desy.zoom.us/j/83631120632>

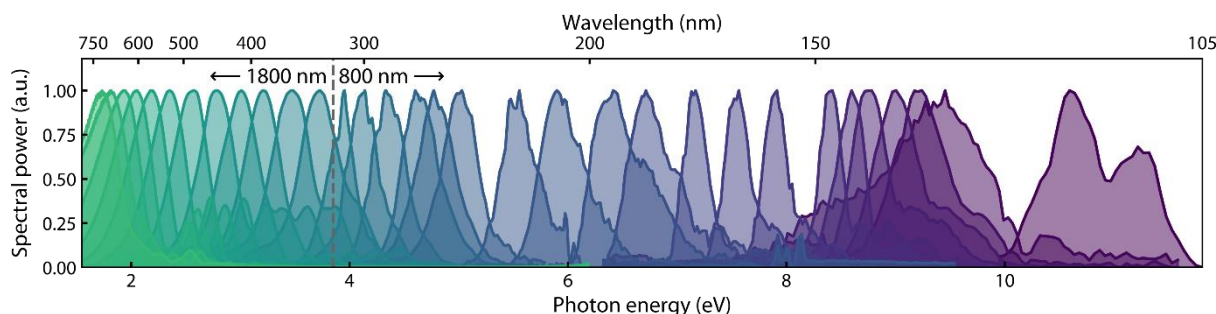
Meeting ID: 836 3112 0632 Password: 235618

## John C. Travers

Institute of Photonics and Quantum Science, School of Engineering and Physical Sciences  
Heriot-Watt University, Edinburgh, EH14 4AS

### "Soliton-driven tuneable few-fs ultraviolet light sources"

A convenient route to generate tuneable few-femtosecond pulses in the ultraviolet region has long been the dream of ultrafast scientists and has been an increasingly active area of research over the last decade. In the last few years, a technique making use of the peculiarities of soliton propagation in gas-filled hollow capillary fibres has become one of the leading routes to generate short ultraviolet pulses. The key features of this technique are its relative simplicity—requiring, in addition to an ultrafast laser system, only a suitably chosen glass capillary and filling gas—the wide tuneability, offering continuous tuning from below 120 nm to the visible spectral range (the figure below shows individual experimentally measured spectra), the short-generated pulse duration (few fs), and the high efficiency, reaching over 15% conversion to the deep ultraviolet region.



In this seminar I will review the fundamentals of this technique, and our key achievements so far. This will include recent developments, such as repetition rate scaling based on using industrialised Yb lasers as pump sources, and simple control of the polarisation properties of the ultraviolet pulses, along with an outlook towards what can be expected in the short term.

**Host: Francesca Calegari / CFEL Molecular and Ultrafast Science Seminar**