

**16<sup>th</sup> June 2015 – 10:00 a.m.**  
CFEL-bldg. 99, seminar room IV (O1.109)

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## Two dimensional spectral interferometry for sub-10-fs UV pulse characterization

Over last decades there has been an impressive development of ultrafast non-linear optics: development of broadband optical parametric amplifiers (OPAs) has allowed generating ultrashort pulses down to the few-optical-cycle regime. Even though well established in the visible and infrared spectral ranges, generation of ultrashort pulses in the UV is challenging. Besides, suitable techniques for their complete characterization are necessary. Availability of well characterized UV pulses is motivated by application of ultrafast spectroscopy to the study of many interesting biological systems, such as DNA and proteins. In my talk, after showing the non-linear technique we exploited for generating UV pulses, based on sum-frequency process between ultra-broadband visible and tunable narrowband pulses, I will mainly focus on two-dimensional spectral shearing interferometry (2DSI), that we applied for their spectral phase characterization. We introduced a novel approach to generate the quasi-monochromatic ancillary fields required by this technique, based on beam spatial filtering in a 4f-pulse shaper. I then will show the capability of the same 4f-2DSI set-up of measuring ultra-broadband pulses also in the visible and infrared spectral ranges.

