



9th November 2022 - 2:00 p.m.
 CFEL-bldg. 99, seminar room IV

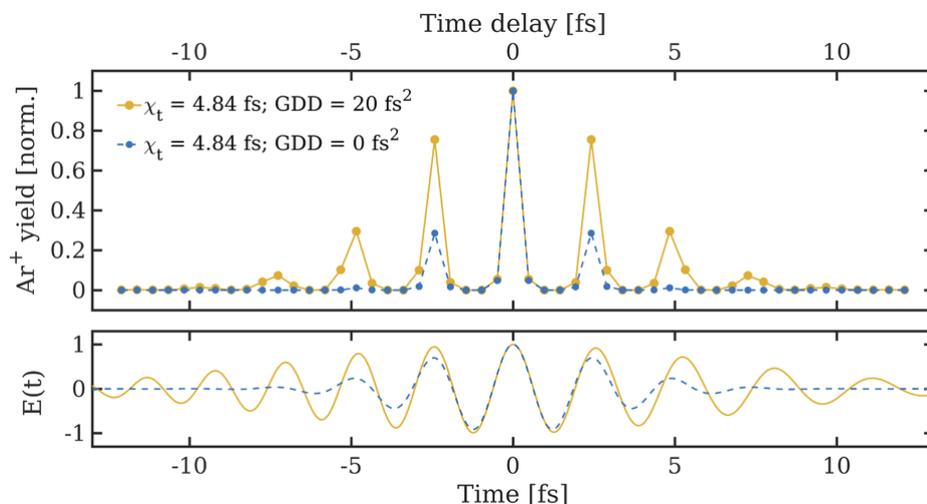
Otfried Geffert

Center for Free-Electron Laser Science, DESY, Hamburg, Germany

Taming few-femtosecond laser pulses with a novel machine-learning algorithm

Ultrafast spectroscopy is based on lasers being able to produce pulses that are as short as a few femtoseconds. These ultrashort transients are strongly affected by propagation through materials. Their temporal profile is required before any application. We propose a scheme for their characterization in-situ and a machine-learning algorithm, called vector space Newton interpolation cage (VSNIC), that uses data from ab-initio calculations to recover temporal properties of the pulses.

Reference: O. Geffert *et al.*, *Opt. Lett.* **47**, 3992 (2022).



The Ar⁺ yield—the autocorrelation pattern—for two pulses that differ only in their group delay dispersion (GDD) and the corresponding electric fields $E(t)$.