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# Experiments with Phase-Controlled Multi-Pulses from FERMI

*Friday, 26 August 2022 11:00 (30 minutes)*

The FERMI Free Electron Laser in Trieste (Italy) has been designed and built as a seeded source, for precise control of the properties of its light pulses. Its excellent longitudinal coherence is inherited from the seed laser, and is its uppermost distinctive feature. In the realm of atomic, molecular and optical science, the use of longitudinal coherence of laboratory lasers as a time reference for precise measurements, as a control parameter for the synthesis of arbitrary waveforms, and for steering the outcome of a photophysical process, has a long history of achievements. One wishes to extend the same concepts to shorter wavelengths, because the latter provide higher spatial and temporal resolution, as well as chemical selectivity. In this talk I will present the challenges faced and the solutions found towards this goal, as well as the applications demonstrated so far, such as: coherent control of photoionization, measurement of photoemission delays, sensitive detection of weak processes, or the generation of periodic waveforms.

The results originate from the joint effort of many international laboratories and of a large number of researchers, whose work is gratefully acknowledged.

## I have read and accept the Privacy Policy Statement

Yes

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