

SUB-CYCLE QUANTUM OPTICS

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First steps in establishing an extreme time-domain approach to quantum physics are presented. Electro-optic sampling allows direct detection of multi-terahertz vacuum fluctuations in free space. The variance of the electric field is inversely proportional to the relativistic space-time volume probed by few-femtosecond laser pulses under tight lateral focusing. The sub-cycle character of such measurements provides signals from purely virtual photons and access to the ground-state wave function.

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CFEL
SEMINAR ROOMS I-III

