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Toward realization of few-cycle free electron lasers: basic concept and its experimental demonstration

Tuesday 3 June 2025 14:00 (30 minutes)

The shortening of the FEL pulse length is an important subject, and especially reducing the FEL pulse length down to a few-cycle duration is a great challenge. However, there exists a theoretical limit that disturbs the realization of few-cycle FELs, which is known as the slippage effect. Recently, the author proposed a novel idea to overcome this difficulty and experimentally demonstrated it [1]. This talk is expected to review its fundamental mechanism and report the results of the demonstration experiments, together with perspectives of few-cycle attosecond pulses that become available with this concept.

[1] T. Tanaka et al., Phys. Rev. Lett. 131, 145001 (2023)

Footnotes

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