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Spatiotemporal diagnostics of XFEL pulses via intensity correlation techniques

Tuesday, 27 October 2020 09:00 (30 minutes)

Characterizing spatiotemporal properties of XFEL pulses is of great importance not only for analyzing experiments, but for giving effective feedbacks to machine operations. As simple and cost effective ways to diagnose XFEL pulses, we have developed X-ray intensity correlation techniques, such as intensity correlation measurements of fluorescence and spontaneous undulator radiation for evaluating XFEL durations [1,2] and spatial profiles of tightly focused XFEL beam [3].
In this presentation, I will talk about the concepts of these techniques and their applications to XFEL pulses from SACLA, as well as the future perspectives.

[1] I. Inoue et al., Phys. Rev. Accel. Beams. 21, 080704 (2018).
[2] I. Inoue et al., J. Synchrotron Rad. 26, 2050 (2019).
[3] N. Nakamura et al., submitted.

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