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Diagnostics for an Electron Pulse Train Obtained by Modulation in a Laser-Driven Dielectric Structure at SwissFEL

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We investigate possibilities that dielectric accelerator structures, excited by fs lasers, offer for X-ray free electron lasers. The present scheme uses a dielectric laser accelerator to modulate an electron beam to create a pulse train of short (100 as) X-ray pulses in the undulators of SwissFEL. The implementation of such a scheme would be enabled by using the experimental chamber installed in the framework of the Accelerator-on-a-Chip International Program (ACHIP), and the chicane that will be installed for the Hidden, Entangled and Resonating Orders (HERO) project.

In this contribution, we will focus on electron beam diagnostics for the modulated and compressed electron beam.

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