



Contribution ID: 84 Contribution code: TUP084-TUA

Type: **Poster Presentation**

## Fresh-sliced FEL generation at PAL-XFEL

*Tuesday 20 August 2024 20:40 (20 minutes)*

A flat dechirper is used for fresh-slice generation of hard X-ray FEL pulses at PAL-XFEL. The electron beam is transversely deflected with a 1m long corrugated plate positioned just before the undulator beamline. The beamline is divided into two parts that contain respectively 8 and 13 undulator modules, and between which a self-seeding chicane introduces a variable electron beam time delay. In this presentation we show simulations and experimental results. In a recent experimental test we successfully operated the fresh-slice FEL with and without self-seeding. To simulate the electron beam deflection, we modified the well-known wakefield formulas from (K. Bane et al., PRAB 19 084401 (2016)) to achieve higher accuracy for long bunches, which matches well with numerical calculations. Our ongoing efforts are focused on obtaining a fresh-slice FEL intensity in comparison to the standard SASE configuration.

### Footnotes

### Funding Agency

**Primary author:** CHO, MyungHoon (Pohang Accelerator Laboratory)

**Co-authors:** SUNG, Chang-Kyu (Pohang Accelerator Laboratory); SHIM, Chi Hyun (Pohang Accelerator Laboratory); YANG, Haeryong (Pohang Accelerator Laboratory); HEO, Hoon (Pohang Accelerator Laboratory); NAM, Inhyuk (Pohang Accelerator Laboratory); MOON, Kookjin (Pohang Accelerator Laboratory); DIJKSTAL, Philipp (Paul Scherrer Institut); KIM, Seongyeol (Pohang Accelerator Laboratory); Mr HU, Wenxiang (Paul Scherrer Institut)

**Presenter:** CHO, MyungHoon (Pohang Accelerator Laboratory)

**Session Classification:** Poster session

**Track Classification:** SASE-FEL