



Contribution ID: 290

Type: **Poster Presentation**

Towards sub-ppm Shot-to-shot Amplitude Stability of SwissFEL Resonant Kicker

Wednesday, 6 July 2016 14:40 (20 minutes)

The development of a fast electron beam switching system for Swiss Free Electron Laser[1] (SwissFEL) is in its final phase. Two high stability resonant kicker magnets followed by a septum should separate two closely spaced electron bunches (28 ns apart) and send them to two separate undulator lines. Extremely high shot-to-shot amplitude stability will ensure minimal shot-to-shot variation of the generated X-ray pulses. As previously reported, the prototype system met the project requirements, reaching 3 ppm rms shot-to-shot amplitude stability[2]. During final system optimization better than 1 ppm rms shot-to-shot amplitude stability ($10e-6$) has been achieved.

[1] M. Paraliev, C. Gough, "Development of high stability resonant kicker for Swiss Free Electron Laser" Proc. 2013 IEEE Pulsed Power and Plasma Science Conference, pp. 1264-1267, San Francisco, CA, USA, doi:10.1109/PPC.2013.6627606, 2013

[2] M. Paraliev, C. Gough, "Stability Measurements of SwissFEL Resonant Kicker Prototype", Proc. 2014 IEEE International Power Modulator and High Voltage Conference, pp. 322-325, Santa Fe, NM, USA, doi: 10.1109/IPMHVC.2014.7287273, 2014

Primary author: PARALIEV, Martin (PSI)

Co-author: Mr GOUGH, Christopher (Paul Scherrer Institut)

Presenter: PARALIEV, Martin (PSI)

Session Classification: Poster 1-A

Track Classification: Repetitive Pulsed Power Systems, Repetitive Pulsed Magnetics, Accelerators, Beams, High Power Microwaves, and High Power Pulse Antennas