Contribution ID: **240** Contribution code: **WEP08** Type: **Contributed Poster**

Simulation Study of a Dielectric Beam Energy Dechirper for the Proposed NSRRC EUV FEL Facility

Wednesday 24 August 2022 17:10 (20 minutes)

In this report, we present a simulation study of dielectric beam energy dechirper designed for the proposed NSRRC EUV FEL facility. As revealed from ELEGANT simulation of the high brightness driver linac system, a residual energy chirp of about 42 keV/⊠m is left after bunch compression. It can be corrected by a capacitive dechirper structure when the bunch is slightly over-compressed. We successfully used a 1-m long corrugated pipe to remove the residual energy chirp in such simulation. However, in order to save space and for a simplified mechanical design, we consider also the usage of two orthogonally oriented planar dielectric-lined waveguide (DLW) structures to remove residual energy chirp after bunch compression. Wake fields due to this DLW dechirper has been calculated by CST code and the deduced wake function will be used in particle tracking using ELEGANT.

I have read and accept the Privacy Policy Statement

Yes

Primary authors: Mr LIU, Chih-Kai (Department of Physics, National Central University); Prof. CHEN, Shih-Hung (Department of Physics, National Central University); Dr LAU, Wai-Keung (National Synchrotron Radiation Research Center); Dr CHIANG, Wei-Yuan (National Synchrotron Radiation Research Center); Mr TENG, Shan You (Department of Physics, National Central University)

Presenters: Mr LIU, Chih-Kai (Department of Physics, National Central University); Prof. CHEN, Shih-Hung (Department of Physics, National Central University); Dr LAU, Wai-Keung (National Synchrotron Radiation Research Center); Dr CHIANG, Wei-Yuan (National Synchrotron Radiation Research Center); Mr TENG, Shan You (Department of Physics, National Central University)

Session Classification: Wednesday posters

Track Classification: Electron beam dynamics