Contribution ID: **130** Type: **Poster**

Bunch lengthening due to dual harmonic cavities of different orders in PLS-II

Thursday, November 14, 2024 1:00 PM (1h 30m)

A double RF system, which consists of a main cavity and its higher harmonic cavity (HHC), is used to increase the bunch length and enhance beam lifetime. This system provides Landau damping and suppresses collective instabilities, thereby improving the beam quality. First, we review the optimal conditions for bunch lengthening using a single HHC, based on the RF parameters of PLS-II. Next, we discuss the optimal conditions for bunch lengthening in the presence of two HHCs of different orders. Our results show that the bunch lengthening factor increases as an extra HHC is added to the double RF system. Since an active cavity offers advantages in bunch lengthening compared to a passive cavity, this study assumes that all the cavities are operated in active mode.

Paper submission Plan

No

Best Presentation

No

Contribution track

ICABU WG2. Beam Physics, Diagnostics & Novel Techniques

Primary author: KIM, Jun-hyoung

Co-authors: Prof. CHUNG, Moses (POSTECH); PARC, Yong Woon (POSTECH)

Presenter: KIM, Jun-hyoung

Session Classification: ICABU Poster Session

Track Classification: ICABU: ICABU WG2. Beam Physics, Diagnostics & Novel Techniques