Contribution ID: **213** Type: **Poster Presentation**

Beam Stability with Ground Vibration Measurements at the Korea-4GSR

Tuesday 9 September 2025 16:00 (2 hours)

The Korea-4GSR (4th Generation Synchrotron Radiation Source) is under construction since 2021 to be a state-of-the-art research facility requiring exceptional stability for its electron beam to ensure high-quality experimental data. Ground vibrations originating from both natural and artificial sources can significantly impact the stability of critical components, particularly the accelerator and beamline elements. To assess the potential influence of these vibrations, we conducted comprehensive ground vibration measurements at the Korea-4GSR construction site. This study was performed with the sensitive accelerometer at various locations across the construction site to characterize the amplitude and frequency content of the ambient vibrations. The collected data were analyzed to evaluate the potential impact on the beam stability, considering the vibration tolerance levels of key accelerator components. This paper presents the preliminary findings of our ground vibration measurements, discussing the observed vibration characteristics and their implications for maintaining the high level of beam stability required for the successful operation of the Korea-4GSR.

Footnotes

Funding Agency

I have read and accept the Conference Policies

Yes

Author: JIN, Hyunchang (Korea Basic Science Institute)

Co-authors: Dr HONG, Gwang-Wook (Pohang Accelerator Laboratory); JANG, Gyeongsu (Pohang Accelerator Laboratory); Dr KIM, Jaehyun (Pohang Accelerator Laboratory); LEE, Jaeyu (Pohang Accelerator Laboratory); SHIN, Seunghwan (Korea Basic Science Institute); Mr KIM, Youngchan (Korea Basic Science Institute); Dr SOHN, Younguk (Korea Basic Science Institute)

Presenter: JIN, Hyunchang (Korea Basic Science Institute)

Session Classification: TUP

Track Classification: MC06: Feedback Systems and Beam Stability