

# Design of Initial Phase Beamlines at the Korea Fourth-Generation Storage Ring (Korea-4GSR)

Thursday, November 14, 2024 9:00 AM (20 minutes)

Ten beamlines are proposed for the initial phase of operations at the new synchrotron facility of the Korea fourth-generation storage ring (Korea-4GSR). The beamlines include: ID03 Coherent X-ray Diffraction *for* Bragg coherent diffraction imaging and real-time micro X-ray diffraction; ID04 Coherent Small Angle X-ray Scattering *for* micro small- and wide-angle X-ray scattering (SAXS/WAXS) and X-ray photon correlation spectroscopy; ID10 Nanoprobe *for* multi-modal nanoprobe scanning with a sub-50 nm monochromatic X-ray probe; BM10 High Energy Microscopy *for* phase contrast imaging at 70-100 keV; ID21 BioPharma-BioSAXS *for* high-throughput solution SAXS; ID22 Bio Nano Crystallography *for* macromolecular crystallography of challenging biomolecules; ID23 Real-time X-ray Absorption Spectroscopy (XAS) *for* in-situ/operando XAS measurements and X-ray emission spectroscopy; ID24 Material Structure Analysis *for* high resolution powder diffraction and XAS; ID25 NanoARPES *for* nano- and micro-scale angle-resolved photoemission spectroscopy; and ID26 Soft X-ray Nanoprobe *for* X-ray photoelectron spectroscopy (XPS) and XAS using soft to tender X-rays. The beamlines are designed to extend and complement the capabilities of the existing beamlines at Pohang Light Source-II. This paper discusses their designs, performance estimation, and potential research applications.

## Paper submission Plan

Yes

## Best Presentation

No

## Contribution track

ICABU WG3. Beamline and Instrumentation

**Primary author:** LIM, Jae-Hong (Pohang Accelerator Laboratory, POSTECH)

**Co-authors:** Ms HAM, Daseul (Pohang Accelerator Laboratory, POSTECH); Mr KIM, Jehan (Pohang Accelerator Laboratory, POSTECH); Dr SHIN, Jaeyong (Pohang Accelerator Laboratory, POSTECH); Dr PARK, Yong Sung (Pohang Accelerator Laboratory, POSTECH); Dr KIM, Yeongsik (Pohang Accelerator Laboratory, POSTECH); Dr KWAK, Mi-Jeong (Pohang Accelerator Laboratory, POSTECH); Dr KWON, Ik Seon (Pohang Accelerator Laboratory, POSTECH); Dr HWANG, In-Hui (Pohang Accelerator Laboratory, POSTECH); Dr HA, Changwan (Pohang Accelerator Laboratory, POSTECH); Dr PARK, Byeong-Gyu (Pohang Accelerator Laboratory, POSTECH); Mr KIM, Ji Hun (Pohang Accelerator Laboratory, POSTECH); Dr KIM, Jangwoo (Pohang Accelerator Laboratory, POSTECH); Mr NOH, Siwoo (Pohang Accelerator Laboratory, POSTECH); Dr KIM, Ki-jeong (Pohang Accelerator Laboratory, POSTECH)

**Presenter:** LIM, Jae-Hong (Pohang Accelerator Laboratory, POSTECH)

**Session Classification:** ICABU WG3

**Track Classification:** ICABU: ICABU WG3. Beamline and Instrumentation