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Status of magnet systems for Korea 4GSR

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A 4th generation storage ring based light source is being developed in Korea since 2021. It features < 100 pm rad emittance, about 800 m circumference, 4 GeV e-beam energy, full energy booster injection, and more than 40 beamlines which includes more than 24 insertion device (ID) beamlines. This machine requires about ~ 1300 magnets including dipole, longitudinal gradient dipole, transverse gradient dipole, sextupoles, and correctors. In this report, the current status and prototyping status of some key magnets are presented. Particularly, impact of the end chamfering of the quadrupole magnet on the integrated multipoles are analyzed and optimum and (hopefully universal) chamfering profile is suggested.

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Primary author: KIM, Dong Eon (Pohang Accelerator Laboratory)

Co-authors: CHUN, Inwoo (Pohang Accelerator Laboratory); JUNG, YoungGyu (Pohang Accelerator Laboratory); LEE, Hong-Gi (Pohang Accelerator Laboratory); LEE, Jaeyu (Pohang Accelerator Laboratory); SUH, Hyung (Pohang Accelerator Laboratory)

Presenter: CHUN, Inwoo (Pohang Accelerator Laboratory)

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