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Storage ring vacuum system design for Korea-4GSR with pill-type getters

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The Korea Fourth-Generation Storage Ring (Korea-4GSR) is under construction in Chungju, Korea, aiming for ultra-low emittance at 4 GeV. Korea-4GSR employs pill-type getters strategically positioned within its vacuum chambers as an alternative to Non-Evaporable Getter (NEG) coatings commonly used in similar facilities. This design choice offers simplified manufacturing processes and ease of maintenance. In this presentation, we highlight updated aspects of the Korea-4GSR vacuum system utilizing pill-type getters. Recent progress includes refined chamber geometries, optimized pill-getter placement for improved pumping efficiency, and enhanced thermal management strategies ensuring structural integrity under high photon flux. Additionally, results from prototype chamber testing, covering achievable vacuum pressure, getter activation procedures, and long-term performance, are discussed. These updates aim to enhance the operational performance and reliability of the vacuum system for synchrotron radiation applications.

Footnotes

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