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## **IVU-II: high-performance and cost-effective in-vacuum undulator for SPring-8-II**

*Wednesday 28 August 2024 16:15 (20 minutes)*

In-vacuum undulators (IVUs), in which permanent magnets are placed inside the vacuum chamber to allow for a narrower gap operation, have two technical challenges; one is a strong attractive force between acting on magnetic arrays, and the other is a stringent requirement on magnetic materials to avoid demagnetization during the bake-out process and long-term operation. The former imposes a complicated design on mechanical and vacuum structures, while the latter limits the possibility of using permanent magnets with high remanence. To solve these issues, several technical developments have been made, such as the force cancellation, modularization of magnetic arrays, and enhancement of resistance against demagnetization by means of a special magnetic configuration. In this talk, performances of new IVUs built upon these technologies are presented to reveal their effectiveness for constructing high-performance IVUs in a cost-effective manner.

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