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# Realization of the in-house developed purifier module for LHe system and liquid nitrogen cooling system for cryogenic in-vacuum undulator

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Two major in-house cryogenic techniques have been applied to the cryogenic in-vacuum undulator and helium gas purification module. The cryogenic in-vacuum undulator is used to generate high-brilliance X-rays at high photon energies and its liquid nitrogen cooling system maintains the magnet temperature at 170K. The purifier module improves the quality of the helium gas by using cold trap effect and includes a molecular sieve to effectively trap moisture. The liquid nitrogen cooling system for the in-vacuum undulator has been commissioned and its functioning well. The combined function for the purifier module has been fabricated, and function testing is expected to be completed by the end of 2023.

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