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Recent progress of robotic R&D for SRF at KEK

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Robotic R&D for SRF started from FY2022 at KEK. Some works related to auto-cleaning and assembly in clean room have been done in FY2023. In FY2024, a simulator 'ROBOGUIDE'was introduced, enabling precise orbit development and positioning, moreover, any 3D models developed by CAD became available on ROBOGUIDE. In FY2025, assembly between mock-up cavity and mock-up coupler will be demonstrated, 2D vision system will be also tested, and the effectiveness of clean work performed by robot will be verified through vertical test of SRF cavities. The third task will be collaboratively done between KEK and FNAL through the US-Japan science and technology cooperation. This robotic technology will be used for the on-going five-year project (MEXT advanced Accelerator element Technology Development (MEXT-ATD)) funded by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The goal is to manufacture, construct and test a cryomodule (CM) that satisfies the ILC (International Linear Collider Project) specifications and conduct cooling tests. The MEXT-ATD program is closely related to the ILC Technology Network (ITN). In this presentation, the recent progress of robotic R&D for SRF at KEK will be reported in detailed.

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Footnotes

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