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Overview of high gradient X-band RF technology development

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During the last years, Research and Development (R&D) of X-band technology for normal conducting particle accelerators has witnessed a tremendous growth. The driving force behind this has been the interest of the Scientific Community in the construction of a Multi-TeV Linear Collider at a reasonable size and costs. Accelerating gradients three to four times larger than those in operational S-C-band linacs have been demonstrated in prototype accelerating structures by the CLIC Collaboration at CERN. In addition to these applications, X-band technology is also rapidly expanding in the field of X-ray FELs and other photon sources, where it has shown great potential for very accurate beam diagnostics and e-bunch manipulations.
An overview of the state-of-the-art of high gradient X-band technology R&D and its main applications will be given.

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