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## Vacuum Component R&D

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The Future Circular Collider study program comprises several machine concepts for the future of high-energy particle physics. In particular, a twin-ring e-e+ collider capable to run at beam energies between 45.6 and 182.5 GeV is proposed as a first phase. The design of its two 100-km ring vacuum system has to deal with low-energy (45.6 GeV) high-current (1390 mA) version as well as the high-energy (182.5 GeV) low-current (5.4 mA) one. The limit for all the versions is given by the 50 MW/beam allotted to the synchrotron radiation (SR) losses. Beyond the vacuum challenges related to the synchrotron radiation and dynamic vacuum, the vacuum system shall have an affordable cost. The proposed technical solutions shall be defined considering these two aspects. The presentation will recall the main requirements and the concept of the vacuum system. It will outline the present technical developments in vacuum technologies potentially suitable for the FCC-ee vacuum system. In particular, shape memory alloy connector and cold spray technologies will be addressed.

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