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Development and application of the RFQs for FAIR and GSI Projects (ACC)

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Almost all modern linacs include a Radio-Frequency Quadrupole (RFQ) as a dedicated section for the bunching of continuous beam and simultaneous pre-acceleration of the ions. Generally an RFQ has a strong influence on the beam quality and a performance of the whole facility. Therefore, proper design of the accelerating-focusing RFQ channel, as well as a correct beam matching to an RFQ acceptance are the key tasks for the linac development and optimization. New RFQs for the FAIR machines are recently under consideration at GSI. Also during the last years several RFQs have been designed and commissioned by GSI team in collaboration with FAIR partners. The design features of these RFQs are presented, as well as their applications for FAIR and GSI Projects, namely UNILAC upgrade, Proton Linac, CW-Linac, HITRAP Decelerator and Therapy Linac.

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