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The status of the Interaction region design and machine detector interface of the FCC-ee

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We present the latest development for the FCC-ee interaction region. It represents a major challenge for the FCC-ee collider, which has to achieve extremely high luminosity over a wide range of centre-of-mass energies. The FCC-ee will host two or four high-precision experiments. The machine parameters have to be well controlled and the design of the machine-detector-interface has to be carefully optimized. In particular, the complex final focus hosted in the detector region has to be carefully designed, and the impact of beam losses and of any type of radiation generated in the interaction region, including beamstrahlung, have to be simulated in detail. We discuss mitigation measures and the expected impact of beam losses and radiation on the detector background. We also report the progress of the mechanical model of the interaction region layout, including the engineering design of the central beampipe, and other MDI components.

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