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The design and electromagnetic analyses of the new elements in the FCC-ee IR beam pipe

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High currents of bunched electron and positron beams plan to be used in the proposed FCC-ee collider to achieve a high luminosity. Naturally, the impedance of the interaction region of the FCC must be as small as possible. Previously, a very smooth beam pipe in the interaction region was designed, and now we add necessary elements important for the beam operation, reduced backgrounds, and assembly. Among these elements are BPMs, expansion bellows, extension of the common beam pipe, and an elliptical synchrotron radiation mask. These new elements will be analyzed to see if they increase the impedance and, then, followed by discussions how to mitigate any issue.

Footnotes

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North America

Primary author: NOVOKHATSKI, Alexander (SLAC National Accelerator Laboratory)

Co-authors: DI PASQUALE, Enrico (Istituto Nazionale di Fisica Nucleare); FRANCESINI, Francesco (Istituto Nazionale di Fisica Nucleare); SEEMAN, John (SLAC National Accelerator Laboratory); ANDRÉ, Kévin (European Organization for Nuclear Research); BOSCOLO, Manuela (Istituto Nazionale di Fisica Nucleare); RAIMONDI, Pantaleo (European Synchrotron Radiation Facility); LAUCIANI, Stefano (Istituto Nazionale di Fisica Nucleare)

Presenter: BOSCOLO, Manuela (Istituto Nazionale di Fisica Nucleare)

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