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Challenges and solutions in the integration studies of the future circular collider

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The Future Circular Collider (FCC) study is developing designs for a new research infrastructure to host the next generation of higher performance particle colliders to extend the research currently being conducted at the Large Hadron Collider (LHC) once the High-Luminosity phase (HL-LHC) reaches its conclusion around 2040. CERN's Integration Office aims to fulfil the requirements of different stakeholders, which includes reviewing alignment defining tunnel cross sections and supporting underground civil engineering designs. After investigating different scenarios, a first layout of an FCC machine tunnel with an inner diameter of 5.5m was defined. This paper describes the integration process for future projects i.e., decisions made and challenges that had to be overcome along the integration studies, from typical cross-sectional dimensioning to 3D machine design.

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Footnotes

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Primary author: VALCHKOVA-GEORGIEVA, Fani (Foselev Suisse SA)

Co-authors: CORSO, Jean-Pierre (European Organization for Nuclear Research); HANKE, Klaus (European Organization for Nuclear Research)

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