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Empowering a broad and diverse community in beam dynamics simulations with Xsuite

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Xsuite is a Python toolkit for modelling and simulation of particle accelerators, which has been developed at CERN together with collaborators from other institutes over the past four years. The code has reached a mature development stage and has become the workhorse for several studies and applications, allowing the gradual replacement of legacy tools like Sixtrack, COMBI, PyHEADTAIL. This contribution provides an overview of the code capabilities and illustrates examples in different areas of accelerator science, including low-energy hadron rings for medical applications, high-intensity hadron accelerators, synchrotron light sources, high-energy hadron and lepton colliders.

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