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SP1: OCELOT as a Framework for Beam Dynamics Simulations of X-Ray Sources

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OCELOT is an open source toolkit for beam dynamics and free electron laser simulations written in Python. Recently the main collective effects (space charge, coherent synchrotron radiation, wakefield) were implemented in OCELOT. In developing of the full-dimensional numerical modeling we pursue two important competitive aspects: the simulation has to be fast and has to include accurate estimations of collective effects. The simulation results for the European XFEL are presented. The results have been benchmarked against other codes and some of such benchmarks are shown.

Primary author: Dr TOMIN, Sergey (European XFEL)

Co-authors: Dr GELONI, Gianluca (European XFEL); Dr ZAGORODNOV, Igor (DESY); Dr AGAPOV, Ilya (DESY); Dr DOHLUS, Martin (DESY)

Presenter: Dr TOMIN, Sergey (European XFEL)

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