Contribution ID: **62** Type: **Oral**

The tracking code RF-Track and its applications

Wednesday, 18 October 2023 15:50 (20 minutes)

RF-Track is a CERN-developed particle tracking code that can simulate any particle species' acceleration and tracking. RF-Track tracks particles in time or in space through field maps and conventional elements and considers a large set of single-particle and collective effects: space-charge, beam-beam, short- and long-range wakefield effects, synchrotron radiation emission, multiple Coulomb scattering in materials, and particle lifetime. A self-consistent model that simulates beam loading effects in standing- and travelling-wave structures was recently added. All these effects make RF-Track an ideal tool for simulating high-intensity machines. RF-Track has been used to simulate electron linacs for medical applications, inverse-Compton-scattering sources, positron sources, protons linacs, electron cooling, and the ionization cooling channel of a future muon collider. An overview of the code is presented, along with some significant results.

Primary author: OLIVARES HERRADOR, Javier (CERN)

Co-author: LATINA, Andrea (CERN)

Presenter: OLIVARES HERRADOR, Javier (CERN)

Session Classification: Afternoon session