Contribution ID: **148** Type: **Poster**

Simulation of the ALISES 3 Plasma Chamber

Monday, 8 September 2025 16:30 (1h 30m)

As part of the development of ion sources, we have simulated the behaviour of particles within the ALISES 3 source, an ECR source ion operating at 2.45 GHz. Thanks to software CST Studio, we can study and evaluate the influence of electromagnetic fields (RF, magnetic and electric DC) and collisional processes on the plasma creation, as well as on the production of the beam. The simulation results show that the combination of the RF field, multipactor, and the presence of gas leads to the ignition of the plasma and can produce high current beams. Some limitations of the software are presented.

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Session Classification: Poster Session

Track Classification: Ion source plasma and beam diagnostics