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## An optimized plasma ion source for difficult ISOL beams

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The ionization by radial electron neat adaptation (IRENA) ion source has been designed to operate under extreme radiation conditions. Based on the electron beam generated plasma concept, the ion source is specifically adapted for thick target exploitation under intense irradiation. A validation prototype has already been designed and tested offline. The design of a new optimized prototype for online difficult beams production with ISOL facilities will be presented. In particular, simulation constructions for thermionic emission, ions confinement and extraction will be presented and results discussed.

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**Authors:** CHEIKH MHAMED, Maher (Institut de Physique Nucléaire Orsay, CNRS-IN2P3); ZHANG, Ailin (Institut de Physique Nucléaire Orsay, CNRS-IN2P3)

**Presenter:** ZHANG, Ailin (Institut de Physique Nucléaire Orsay, CNRS-IN2P3)

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