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Design and Thermal Simulations Towards a High Intensity Radioactive Ion Source for ISOL@MYRRHA

MYRRHA is the world's first large-scale Accelerator Driven System project at power levels scalable to industrial systems. **ISOL@MYRRHA** will produce Radioactive Ion Beams (RIBs) with the Isotope Separation On-Line (ISOL) technique, with production increase by high intensity primary beams on long period while aiming at keeping the secondary beam quality.
Higher flux prevalently affects the RIB ion source. A surface ion source is chosen because of its reliability and simple design. To identify our source relevant parameters at higher intensity, ANSYS thermal-electric simulations were made. To start, a heating system study with experimental results from the SPES project were reproduced and modified by :
- **Insulate electrically** the source from its support
- **Add a feedthrough**
- **Transform a passive thermal screen into an active part**
This new heating system will be tested, improved and validated in the future with experimental results on the heating test stand at SCK CEN.

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