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Upgrade of the GTS Electron Cyclotron Resonance Ion Source at GANIL

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The GTS (Grenoble Test Source) electron cyclotron resonance ion source, operated at 14.5 GHz, provides multiply charged heavy ion beams for the ARIBE (Accélérateurs pour les Recherches Interdisciplinaires avec les Ions de Basse Energie) facility at GANIL (Grand Accélérateur National d'Ions Lourds). In order to increase the beam currents and charge states available for experiments and to have a test bench with good performance for the R&D of new beams for GANIL users, the ion source has undergone a number of upgrades. These include the refurbishment of the extraction system and the addition of a new central coil. The injection side of the source will also be replaced in the future. A simulation approach has been used in parallel to the upgrades to identify potential performance limitations in the beam extraction and low energy beam transport sections. In addition, metal ion beam production with the MIVOC method has been tested for the first time with the GTS to expand the beam catalogue available for the ARIBE experiments. The performance of the upgraded GTS will be presented along with the results from the simulation studies and the MIVOC tests.

Author: Dr TOIVANEN, Ville (Grand Accélérateur National d'Ions Lourds (GANIL))

Co-authors: BARUE, Christophe (Grand Accélérateur National d'Ions Lourds (GANIL)); FEIERSTEIN, Claire (Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, CIMAP); JARDIN, Pascal (Grand Accélérateur National d'Ions Lourds (GANIL)); LEMAGNEN, Frederic (Grand Accélérateur National d'Ions Lourds (GANIL)); MAUNOURY, Laurent (Grand Accélérateur National d'Ions Lourds (GANIL)); NOURY, Fabien (Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, CIMAP); ROUSSEAU, Patrick (Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, CIMAP and Université de Caen Basse-Normandie)

Presenter: Dr TOIVANEN, Ville (Grand Accélérateur National d'Ions Lourds (GANIL))

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