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Design, construction and commissioning of the SuSI ECR PETER ZAVODSZKY, BEN AREND, DALLAS COLE, JON DEKAMP, GUILLAUME MACHICOANE, FELIX MARTI, PETER MILLER, JIM MOSKALIK, WILLIAM NURNBERGER, JACK OTTARSON, JOHN VINCENT, XIAOYU WU, ALBERT ZELLER, NSCL/MSU — An ECR ion source was constructed at the NSCL/MSU to replace the existing SC-ECRIS. This ECRIS operates at 18+14.5 GHz microwave frequencies and it is planned an upgrade to 24-28 GHz in the second phase of commissioning. A superconducting hexapole coil produces the radial magnetic field; the axial trapping is produced with six superconducting solenoids enclosed in an iron yoke to allow tuning the distance between the plasma electrode and resonant zone in the plasma. The plasma chamber of the ion source can be biased at +30 kV, the beam line at –30 kV. The voltage of the beam line vacuum pipe must be kept constant from the ECRIS to the point of full separation of the beam charge states near the image plane of the analyzing magnet. At this point, an insulator is used to increase the voltage up to zero value. The kinetic energy of the beam is decreased to 30 kV per unit charge after this point, as required for the injection in the Coupled Cyclotron Facility. To decrease the beam divergence, a focusing solenoid is installed after the vacuum pipe break. We report the details of the design, construction and initial commissioning results of this new ECIS.

Peter Zavodszky
NSCL/MSU

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