

MonPS15

First plasma and beam extraction of the RAON ECR ion source

Yonghwan Kim, Bum-sik Park, Sukjin Choi, Jeongil Heo, and In Seok Hong

Institute of Basic Science, Daejeon, Korea

Corresponding Author: Yonghwan Kim, e-mail address:yhkim1972@ibs.re.kr

Raon⁽¹⁾ ECR ion source has been built in test site in Korea. First plasma was ignited with a 28GHz MW power, and the beam was extracted. Oxygen was selected as the first beam species because 1)it could be handled easily in a gaseous form and 2)it can enhance the alumina layer on the plasma chamber surface which can increase the beam current⁽²⁾. As the start-up state, the magnetic field was charged up as the 60% of the designed target value at which ECR zone can be formed in the discharge region. We measured O5+ beam of 100uA at the first beam extraction experiment. It is thought that beam loss occurred in our beam transport line. Further experiments are being done to increase the beam current of a highly charge state such as O6+ through the optimization of the plasma discharge parameters and focusing lattice operating conditions.

[1] D. Jeon, in Proceedings of IPAC2013, Shanghai, China, 2013, THPWO062.

[2] Z. Xie et al, Review of Scientific Instruments **67**, 886, (1996).