

Development of a Vacuum Arc Metal Ion Source (MEVVA) as an Ion Source for a Heavy Ion Accelerator, P. SPAEDTKE, Darmstadt, Germany; J.G. BROWN, LBL, California; E.M. OKS, Tomsk, Russia - A vacuum arc ion source is attractive for heavy ion accelerators because of the possibility to produce a high current and a long pulse ion beam. There are some drawbacks that limit a wide application of this source for the injector. The results presented in this paper were obtained in a collaborative project between Darmstadt, Berkeley and Tomsk. The goal of the current project is a further improvement of this rather promising ion source. For that reason a strong magnetic field (a few kilogausses) located only in the cathode spot region was applied. Together with the strong B-field a small metal grid for the stabilization of the plasma emission surface was established near the ion extraction region. These modifications lead to an enhancement of the mean charge state of the extracted ion beam by factor 1.3-2.5 depending on the cathode material. It also provides an increase in ion beam current, improvement of uniformity of beam current density, reduction the noise of ion beam current and simultaneous gaseous and metal ion generation.