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**Construction and Investigation of Metal Ion Source for Partially
Ionized Beam deposition**

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A metal ion source has been designed and constructed for partially ionized beam (PIB) deposition. The novelty of PIB source lies in the fact that the crucible and ionization parts are spaced in one cylindrically shaped shell and are not divided in electric circuit.

The presented construction is significantly compact in comparison with the previous models, thus, the sufficiently high crucible temperatures (up to 2000 K) can be obtained.

The experimental investigations of ICB source were aimed at finding stable operation regimes, where fine adjustment of deposition rate in the given range were possible, at the investigation of the conditions of effective ionization of metal atoms, at the revealing of conditions of obtaining mostly uniform metal ion beams, The PIB source has been used for Cu deposition to investigate the possibility of application of the film to ULSI.