

MUCIS (MULTi Cusp Ion Source)



MUCIS is one of the first high current gaseous ion sources used at GSI for beamtime operation. It is a filament driven ion source with non-axial filament configuration. It has two filament holders which are equipped with 3 spiral tantalum filaments and placed symmetrically relatively to the beam axis. The multi-cusp field is realized by 60 SmCo-magnets (1.8 Tesla). In addition one can apply a confining field of up to 0.1 Tesla with an external magnetic coil. MUCIS is universal source for production of all types of gaseous ions (light and heavy gases).

Plasma generator	Dimensions: \varnothing 205 x 215 mm
	Multi-cusp magnetic confinement
	Magnetic electron repeller
	2 x 3 Ta-filaments
Extraction system	Triode, Multi aperture: 13 x \varnothing 3 mm
	Aspect ratio: 0.5
	Extraction voltage: up to 33 kV
	Post-acceleration: up to 150 kV
Operation parameters	Arc current: up to 200 A
	Emission current density: up to 180 mA/cm ²
	Typical duty cycle: 5 Hz, 1 ms
Working gas	H ₂ , D ₂ , He, CH ₄ , Ne, N ₂ , Ar, Kr, Xe
History	In operation at GSI: since 1987
	Developer: GSI, H. Wituschek