

## **Characteristics of electric field in the liquid metal ion source with a suppressor**

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The liquid metal ion sources(LMIS) in FIB system have many advantages of high current density, high brightness, and low ion energy spread. Most FIB systems use LMIS because the beam spot size of LMIS is smaller than of gas field ionization sources(GFIS). LMIS basically consists of a emitter(needle, anode), a reservoir(gallium) and a extractor(cathode). But several LMIS have new electrode called the suppressor.

We investigated characteristics of LMIS with a suppressor. The characteristics of the threshold voltage and current-voltage (I-V) were observed under the varying extracting voltage with floated suppressor voltage, and under the varying suppressor voltages with fixed extractor voltage. We also simulated LMIS with the suppressor through CST(Computer Simulation Technology). We can explain characteristics of LMIS with a suppressor using the electric field.