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Tubular Electron String Ion Source Development

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Tubular Electron String Ion Source (TESIS) is being developed to significantly increase ion output. Tubular electron beam is generated in electron string mode. Such configuration should make it possible to increase the electron trap capacity and, accordingly, the ion output.

Numerical results of modeling the motion of the beam for the design of electron optics are carried out. The experimental setup consists of the cryocooler based cryostat and the superconducting solenoid. The electron gun with the annular composite cathode, the electron reflector and drift tubes with the central rod have been designed and installed. The electron gun control system has been tested. The results on the accumulation of electrons in the electron string mode have been obtained. Ion motion control is discussed.

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