

## **SIMULATIONS OF RADIOFREQUENCY ION FUNNEL OF CRYOGENIC GAS STOPPING CHAMBER OF MULTIPLE-REFLECTION TIME-OF-FLIGHT MASS SPECTROMETER**

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Multiple-reflection time-of-flight mass spectrometer (MR-TOF MS) is being built in Flerov Laboratory of Nuclear Reactions in Joint Institute of Nuclear Research in Dubna. MR-TOF MS will help to determine mass of superheavy elements produced there. To measure mass of produced superheavy nuclei, those nuclei have to be slowed down first. This is done using cryogenic gas stopping cell (CGSC). After stopping the ions are then guided from the CGSC to the MR-TOF MS using a radiofrequency (RF) funnel. RF funnel is an ion guide that consists of 76 individual ring electrodes with a decreasing inner diameter from 266 mm to 5 mm towards the extraction nozzle. Between neighboring electrodes, a 180° phase-shifted radio frequency is applied that creates a repulsive electric field force to prevent the ions from hitting the electrodes. where is located extraction radio-frequency quadrupole (RFQ). This paper deals with development of radiofrequency (RF) funnel. Optimal RF field in RF funnel was simulated using COMSOL Multiphysics and NI Multisim. Circuit layout was then designed and optimized using data from simulations.

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