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Simulation of Electron Drift in the Active-Target ND Cube SERGIO RAMIREZ MARTIN, None — Nucleosynthesis reactions can be highly sensitive to cluster structure in nuclei. In order to experimentally identify cluster structures in nuclei, we will use a combination of resonant scattering and transfer reactions using an active-target detector called the ND Cube. This active-target detector includes a field cage used to image charged-particle tracks from nuclear reactions. Recording these track images will give us information about the structure of the interacting nuclei through the measurement of reaction cross sections. Before any experiment is performed, it is necessary to run a simulation of the electric field produced by the field cage to ensure the field uniformity is sufficient for our needs. We make use of a finite element analysis program to calculate the electric field for arbitrary shapes and the program Garfield to simulate the electron drift and multiplication in the proportional counting region of the detector. After the simulation is performed and we confirm the electric field uniformity, we can move forward to assemble the field cage and prepare the ND Cube detector for commissioning and future experiments that are aimed at searching for nuclear clusters.

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