

Proposal summary.

To study the nuclear transparency in α +A reactions at energies ≥ 12 GeV/nucleon.

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collaboration.

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The question about transparency is crucial for heavy ion reaction studies. If the transparency is low at 10-15 GeV per nucleon then very large baryon densities can be achieved in this energy range, maybe enough to produce quark-gluon plasma in U+U collisions.

We propose to measure, event by event, pseudo-rapidity and multiplicity distributions of singly charged relativistic particles ($\beta > 0.7$) globally and in selected regions of rapidity as well as multiplicities of recoiling protons (30-400 MeV) and multiply charged nuclear fragments. These studies will explore general features of α +A reactions at energies ≥ 12 GeV/nucleon. Our main goal of the experiment is to measure the transparency of nuclear matter in this energy range. The detector will be nuclear emulsion.

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