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Antiproton-Nucleus reactions with the Liège IntraNuclear Cascade (INCL) code

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INCL is a nuclear reaction code that simulates reactions between a light particle and a nucleus with energies ranging from a few MeV to a few GeV. It has been evolving for several decades and can use several types of projectile: nucleon, pion, Kaon, Lambda, Sigma, but also light nuclei ($A < 19$).

The characteristics of all the particles (nucleon, pion, eta and omega meson, Kaon, Lambda, Sigma) and residual nuclei (including hypernuclei) produced are stored.

To obtain the final result, INCL is combined with a de-excitation code, usually the ABLA code.

Both codes are implemented in the Geant4 particle transport code.

We have recently added a new type of projectile: the antiproton.

Antiprotons can interact with a nucleus in two different ways: at rest (they are captured in an electron orbit) and in flight (they penetrate the nucleus and initiate collisions with nucleons).

Both scenarios are available in INCL.

After a brief introduction to INCL, I will present how it handles interactions with antiprotons (hypotheses and ingredients) and show some comparisons with experimental data.

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Track Classification: Nuclear and Hadronic Physics with antiprotons and antineutrons