



Contribution ID: 33

Type: **not specified**

## **INCL4.5 and Abl07 - Improved versions of the intranuclear cascade (INCL4) and deexcitation (Abla) models**

*Friday, June 4, 2010 11:10 AM (20 minutes)*

The two codes INCL4.2 (Intra-nuclear cascade) and Abl07 (deexcitation), combined to describe spallation reactions, have been improved in the last years. The main points were the light charged particle emission and IMF (Intermediate Mass Fragment) emission. The new versions, INCL4.5 and Abl07, give now good results in particular on tritium and helium production. An international benchmark, where these two codes participated, shows that this spallation model combination is one of the most reliable to reproduce particle and residue production in a wide projectile energy range. These two models have been implemented recently in MCNPX2.7 (beta version).

Significant improvements in microscopic results will be shown and new calculations for the Megapie target will be compared to the previous results.

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**Session Classification:** Session 6 - Present status of data and code libraries

**Track Classification:** Present status of data and code libraries