

Cosmogenics: long-term goals

- Denis - coordination with radiogenics and framework.
- Long-term goals (very general):
 - To understand and being able to model parameters of the neutron flux underground (spectra at high energies, yields etc);
 - To model effects that neutrons (and other particles) produced by cosmic-ray muons produce in high-sensitivity dark matter, neutrino-less double-beta decay and neutrino experiments.

Cosmogenics: short-term goals

- Short-term goals (person responsible, deadline):
 - Basic principles and procedures for benchmarking (G4/FLUKA) - Vitaly, 6 March.
 - Understanding difference between G4 versions / physics lists (JENDL cross-sections, Shielding/QGSP) - Denis - look at the cross-section (31 March), Angela - look at her simulations again (31 March);
 - Basic comparison between G4 (several versions) and FLUKA: primary muons of different energies travel through different materials, comparison of neutron yields and spectra - Denis, Tony, 30 April;
 - Rock composition to be sent to Vitaly for MUSIC - Dongming, 31 March;
 - MUSIC/MUSUN for Homestake (flat surface) - Vitaly, 31 May;
 - (n,an) processes in lead (a is a positive integer), comparison between G4 (several models) and FLUKA (procedures probably similar to primary muons) - Melinda, Ray, Tony, Denis, 31 June.
 - Check the number of stopping muons and the effects of muon capture - Dongming, 31 May.

Cosmogenics: medium-term goals

- Medium-term goals:
 - Implementation of new methods of treating muon inelastic scattering in GEANT4 (if necessary) - Denis, December 2011 (to be reviewed in June depending of its importance, other tasks and other factors).
 - (Alpha,n) reactions in GEANT4 - Denis (+ others), 2 years (ideally).