



Contribution ID: 124

Type: not specified

## Light ion beams for energy production in accelerator driven systems

Friday, July 7, 2017 3:45 PM (15 minutes)

A comparative study of the energy efficiency of proton beams with an energy from 0.5 GeV to 4 GeV and light ion beams (7Li, 9Be, 11B, and 12C) with energies from 0.25 AGeV to 1 AGeV in natural and enriched quasi-infinite U target is presented. The numerical results on the particle transport and interaction are obtained using the code Geant4. The following target optimization issues are addressed: the beam window dimensions, the coolant, the possibility to use a core from low Z materials. The best solution for ADS from the point of view of the energy gain and miniaturization is obtained for 7Li or 9Be beam with an energy of 0.35–0.4 AGeV and a target with Be core.

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**Session Classification:** Mathematical methods and software for experimental data processing