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## Intercomparison of Particle production

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Intercomparison of Particle production

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In accordance with the discussion at SATIF11, we sent the following inter comparison problems of particle production from thick targets to understand the differences of neutron attenuation inside Fe and concrete.

1. Incident particle  
Pencil beam of protons with following energy
  - (a) 1 GeV
  - (b) 10 GeV
  - (c) 100 GeV
2. Target materials and their size  
Targets geometry is the cylinder.  
Source protons incident on the center of the cylinder bottom.  
Target detector distance from the center of the cylinder is 500cm.
  - (a) Al : length 40cm, diameter 4.0cm and density 2.7g/cm<sup>3</sup>
  - (b) Cu : length 16cm, diameter 1.6cm and density 8.63 g/cm<sup>3</sup>
  - (c) Au : length 10cm, diameter 1.0cm and density 19.3 g/cm<sup>3</sup>
3. Quantities to be calculated  
Neutron spectrum above 20 MeV in n/MeV/sr/proton  
at 15, 30, 45, 60, 90, 120, 150 degrees with angular width  $\pm 0.5$  degrees.
4. Calculated results must be sent to H. Hirayama at KEK (hideo.hirayama@kek.jp) with the following data till March 30 of 2014 to prepare the intercomparison.
  - (a) Name of participants and organization
  - (b) Name of computer code used for calculations
  - (c) Name of data base used in the calculation

At SATIF12, we will present comparison between results sent us till the end of March.

### Summary

Present comparison of neutron production by high energy protons between various codes will be presented to understand the differences of neutron attenuation inside Fe and concrete.

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