

Fast neutron filter design for the neutron diffraction technique

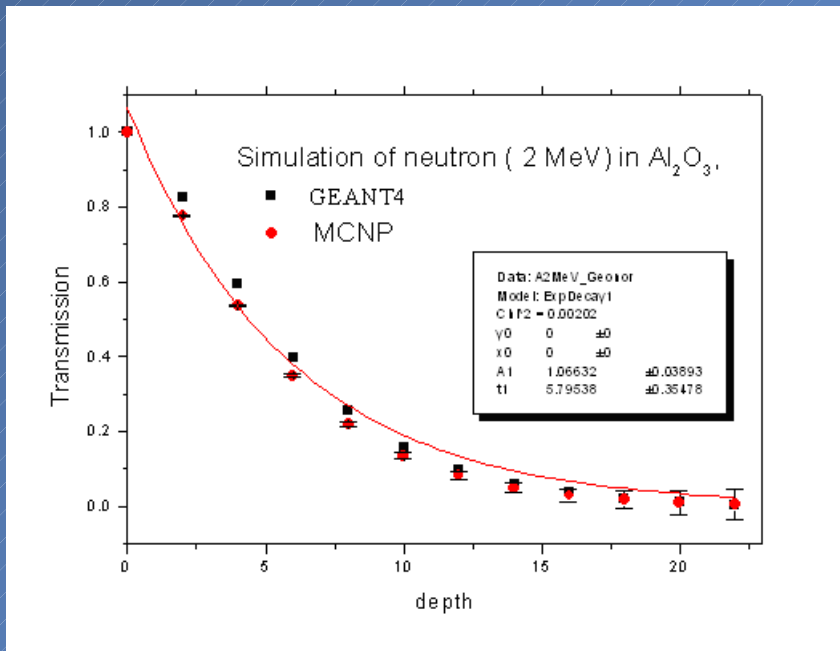
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The neutron diffraction technique is a powerful tool for characterizing the crystallographic and magnetic structure materials under different conditions .The simulation of a diffractometer with Geant4 and MCNP will be a good example of technology transfer between various disciplines of physics

The present work is concerned with the optimisation of the sapphire fast neutron filter thickness. Sapphire has been proved an affective Thermal neutron transmission and fast neutron attenuation . In particular, the attenuation of fast neutron has been determined as function of the filter thickness. The simulations results, obtained for different fast neutron energies, show a good agreement between the MCNP and Geant4 codes



Fast neutron transmission as a function of sapphire crystal thickness

References

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