

International Conference on

Nuclear Chemistry

December 08-09, 2016 San Antonio, USA

Experimental measurements with Monte Carlo corrections and theoretical calculations of neutron inelastic scattering cross section of ^{115}In

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As a kind of important activating material, accurate measurement of ^{115}In neutron inelastic scattering cross section data of neutron flux monitoring is of great significance. At the 2.5 MeV electrostatic accelerator of Sichuan University, the neutron inelastic scattering cross section of ^{115}In has been measured by the activation technique at neutron energies of 2.95, 3.94 and 5.24 MeV with the neutron capture cross sections of ^{197}Au as an internal standard. The effects of multiple scattering and flux attenuation by the target, the cooling water and the coating material of the sample were corrected using the Monte Carlo code GEANT4. Based on the experimental values, the ^{115}In neutron inelastic scattering cross sections data were theoretically calculated between the 1 and 15 MeV with the TALYS software code, the theoretical results of this study are in reasonable agreement with the available experimental results. The results should be useful for fixing statistical model parameters and neutron activation analysis.

Biography

Chao Wang is pursuing his Doctoral degree of Nuclear Technology and Application at Institute of Nuclear Science and Technology, Sichuan University. His research interests include neutron physics from computer simulation to experiment measurement. He has published 3 papers in reputed journals.

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