Abstract Submitted
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Studies of neutron scattering off ^{54}Fe with monoenergetic neutrons at 3 and 4 MeV[1] SAMUEL HENDERSON, LESLIE SIDWELL, SALLY HICKS, University of Dallas Department of Physics, JEFFREY VANHOY, EVARISTO GARZA, JOSHUA STEVES, United States Naval Academy Department of Physics, STEVEN YATES, MARCUS MCELISTREAM, University of Kentucky Department of Physics and Astronomy, ERIN PETERS, University of Kentucky Department of Chemistry, BENJAMIN CRIDER, TIM ROSS, FRANCISCO PRADOS-ESTÉVEZ, University of Kentucky Department of Physics and Astronomy — Accurate and precise neutron scattering data from ^{54}Fe and other structural materials in the fast neutron energy region are essential for the optimization of current and future fission reactors. Neutron scattering and absorption by Fe affects the ideal operating parameters for the nuclear fission process and also affects the overall efficiency of the nuclear reactor. While neutron elastic crosssections for ^{54}Fe at incident neutron energies between 3 and 4 MeV have been previously measured, the previous experiments tended towards larger error in the elastic, and there is a significant dearth of experimental data for the inelastic states. Neutron elastic and inelastic differential scattering crosssections of ^{54}Fe have been measured at the University of Kentucky Accelerator Laboratory at the fast neutron energies of E_n =3 MeV and 4 MeV. Results from our measurements and comparisons to evaluated cross sections from the National Nuclear Data Center will be presented.

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