Abstract Submitted
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Mass Yields and Average Total Kinetic Energy Release in Fission for ^{235}U, ^{238}U, and ^{239}Pu[1] DANA DUKE, Los Alamos National Laboratory — Mass yield distributions and average total kinetic energy ($\overline{TKE}$) in neutron induced fission of ^{235}U, ^{238}U, and ^{239}Pu targets were measured with a gridded ionization chamber. Despite decades of fission research, our understanding of how fragment mass yields and $\overline{TKE}$ depend on incident neutron energy is limited, especially at higher energies (above 5-10 MeV). Improved accuracy in these quantities is important for nuclear technology as it enhances our simulation capabilities and increases the confidence in diagnostic tools. The data can also guide and validate theoretical fission models where the correlation between the fragment mass and TKE is of particular value for constraining models. The Los Alamos Neutron Science Center - Weapons Neutron Research (LANSCE - WNR) provides a neutron beam with energies from thermal to hundreds of MeV, well-suited for filling in the gaps in existing data and exploring fission behavior in the fast neutron region. The results of the studies on target nuclei ^{235}U, ^{238}U, and ^{239}Pu will be presented with a focus on exploring data trends as a function of neutron energy from thermal through 30 MeV. Results indicate clear evidence of structure due to multi-chance fission in the $\overline{TKE}$.

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