Contribution ID: **73** Type: **Poster**

Inverse-Oslo method to extract statistical properties of ^{133}Xe for Nuclear Plasma Interactions

^{133}Xe is an interesting case for plasma physics to study the nuclear excitation by electron capture, as the process can be studying using the statistical properties of ^{133}Xe.
In this work we present results from the inverse-Oslo method on ^{133}Xe where we extract the nuclear level density and the γ-strength function, which can be used to calculate the (n,γ) cross section on ^{132}Xe. The γ-strength function of ^{133}Xe can narrow down the estimated decay rate from nuclear excitation by electron capture. With the inverse-Oslo method, it is possible to study nuclei that are hard to manufacture targets from, short lived isotopes or as in this work, noble gases. Here we show the extracted nuclear level density and γ-strength function for ^{133}Xe, along with shell-model calculations of the statistical properties of ^{133}Xe. Using these results, we constrain the ^{132}Xe(n,γ)^{133}Xe cross section on ^{132}Xe using the Hauser-Feshbach code TALYS.

Author: BERG, Hannah

Co-authors: SIEM, Sunniva (University of Oslo); Dr INGEBERG, Vetle Wegner (University of Oslo (NO))

Presenter: BERG, Hannah

Session Classification: Day 1