

ANALYSIS OF REACTION CROSS-SECTION PRODUCTION IN NEUTRON INDUCED FISSION REACTIONS ON URANIUM ISOTOPE USING COMPUTER CODE COMPLET

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This study describes the energy production processes in the neutron induced fission reactions of uranium isotope on projectile energy range of 1 MeV to 100 MeV. In such fission reactions of ^{235}U within nuclear reactors, much amount of energy would be released as a product that able to satisfy the needs of energy to the world wide without polluting processes as compared to other sources. The main objective of this work is to transform a related knowledge about energy production process in the neutron-induced fission reactions on ^{235}U through describing, analysing and interpreting the theoretical results of the cross sections obtained from computer code COMPLET by comparing with the experimental data obtained from EXFOR. The cross section value of $^{235}\text{U}(n,2n)^{234}\text{U}$, $^{235}\text{U}(n,3n)^{233}\text{U}$, $^{235}\text{U}(n,)^{236}\text{U}$, $^{235}\text{U}(n,f)$ are obtained using computer code COMPLET and the corresponding experimental values were browsed by EXFOR, IAEA. The theoretical results are compared with the experimental data taken from EXFOR data bank. Computer code COMPLET has been used for the analysis with the same set of input parameters and the graphs were plotted by the help of spreadsheet and Origin-8 software. This comparison of the gathered data was analysed and interpreted with tabulation and graphical descriptions. The quantification of uncertainties stemming from both experimental data and computer code calculation plays a significant role in the final evaluated results. The obtained calculated results were compared with the experimental data taken from EXFOR in the literature. Good agreement was found between the experimental and theoretical data, while in others considerable derivations were observed.

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