

# **Modeling the Impact of High and Thermal Energy Neutron Flux on Semiconductor Film Heterostructures**

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In this scientific study, we conducted extensive numerical modeling of the impact of neutrons of various energies on semiconductor films using Geant4 software. Our research covers the full spectrum of reactions that can occur in the material when exposed to neutrons, including both elastic collisions and inelastic processes.

An important aspect of our work was the detailed study of the influence of neutron energy on the reactions occurring in the semiconductor. Our results include data on various types of secondary particles formed during the interaction of neutrons with semiconductors.

This research project is significant for understanding the physical processes occurring in semiconductors when irradiated with neutrons and may lead to the development of new methods for controlling and manipulating the properties of semiconductor materials. The obtained data will be used for comparison with the results of irradiating samples in a reactor with a specific neutron spectrum, allowing for more accurate prediction of the electro-physical characteristics of the semiconductor and its behavior under different conditions.

Furthermore, our study may find applications in various fields, including nuclear energy, electronics and medical technology, and the aerospace industry, where understanding the impact of neutrons on semiconductor materials plays a crucial role.