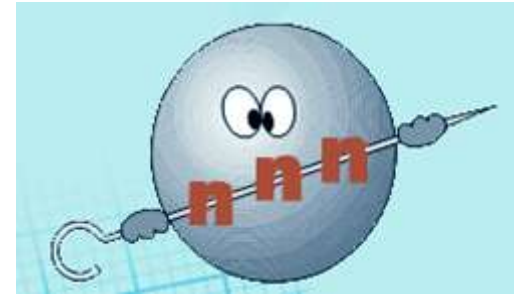




In the name of Allah
the most beneficent, the most merciful



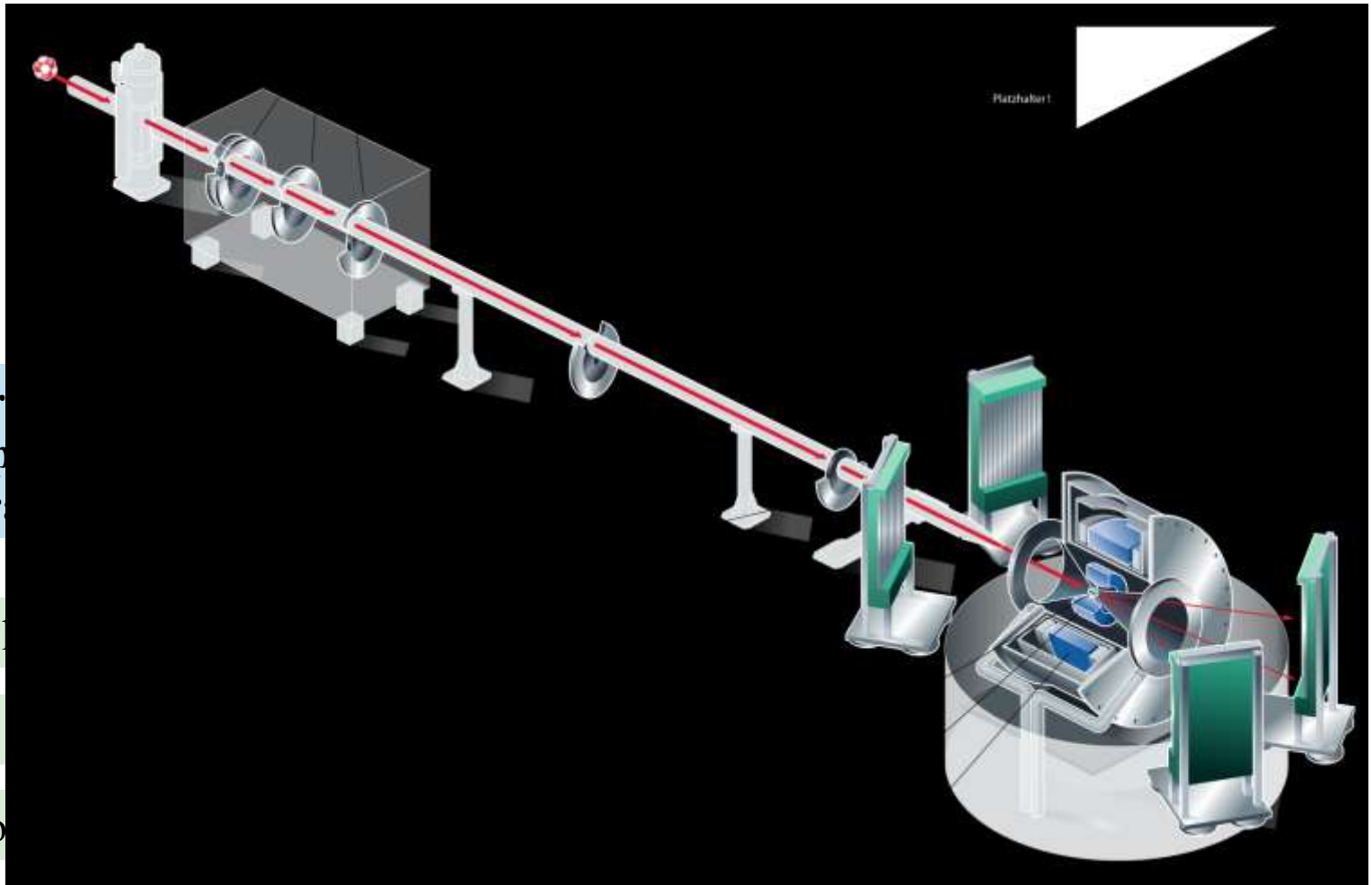
Investigation of disc choppers for Tehran research reactor neutron diffractometry system using VITESS3.3A code

Elham Bavarnegin, Zohreh Gholamzadeh, Mohammad Lamehi Racht
Nuclear Science and Technology Research Institute, Iran

Dubna, Russia, May 2017

Choppers

Choppers are devices for converting a continuous neutron beam into a pulsed beam by passing the neutron through a rotating slotted disc or cylinder.



Platzhalter!

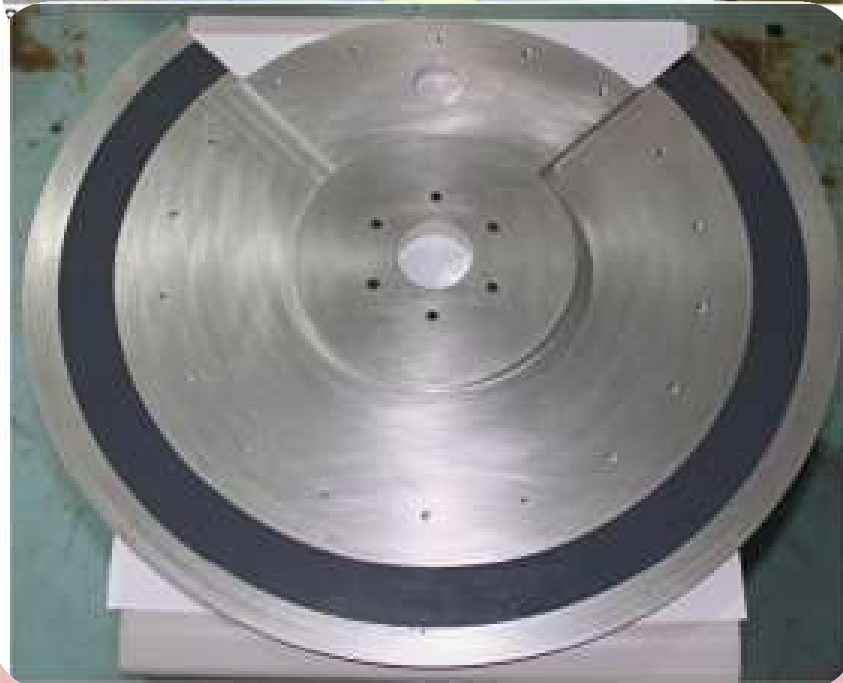
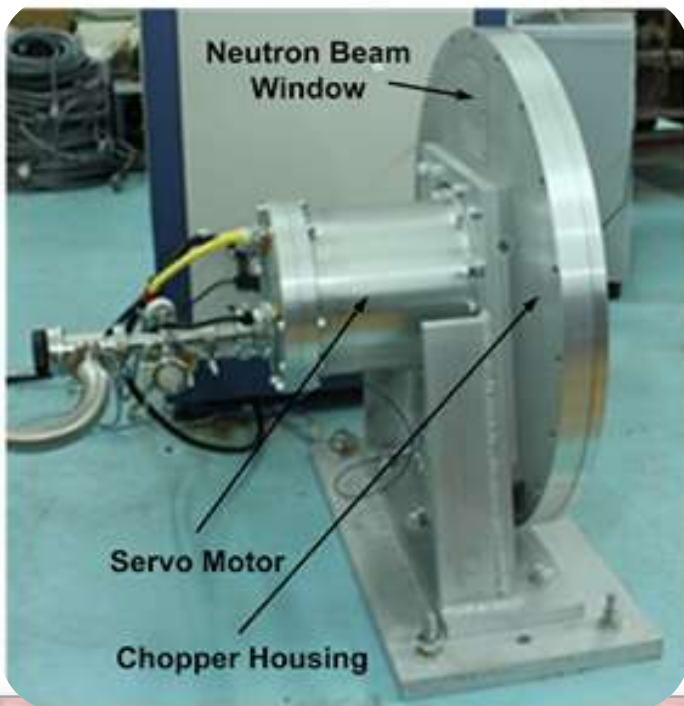
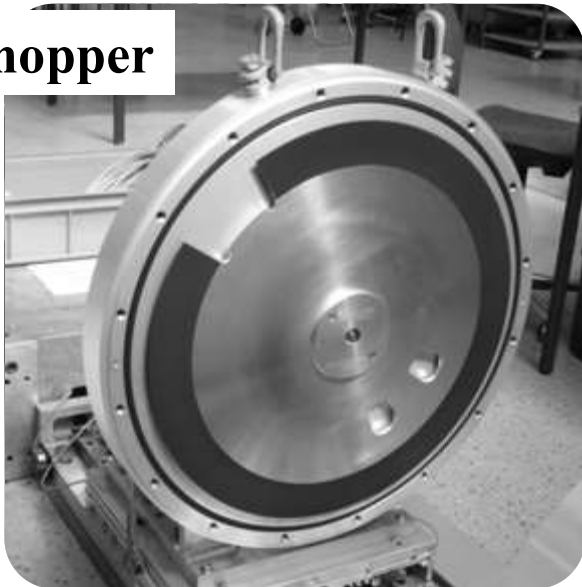
Differ
chopp
diffra

Disc c

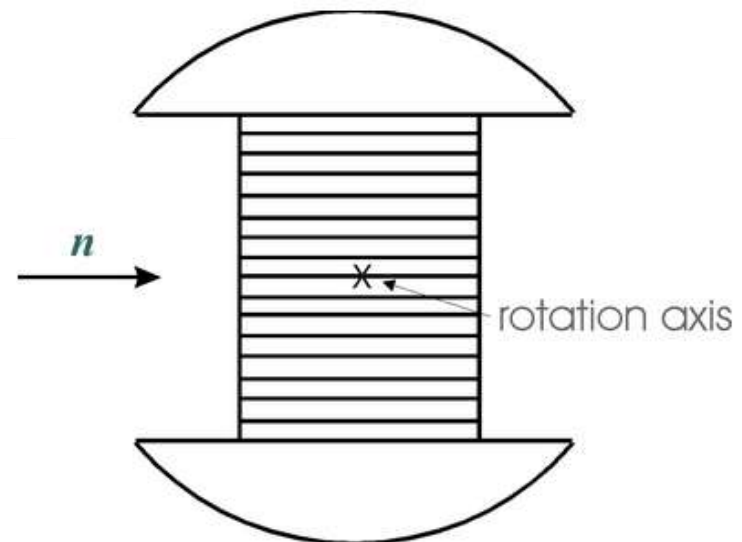
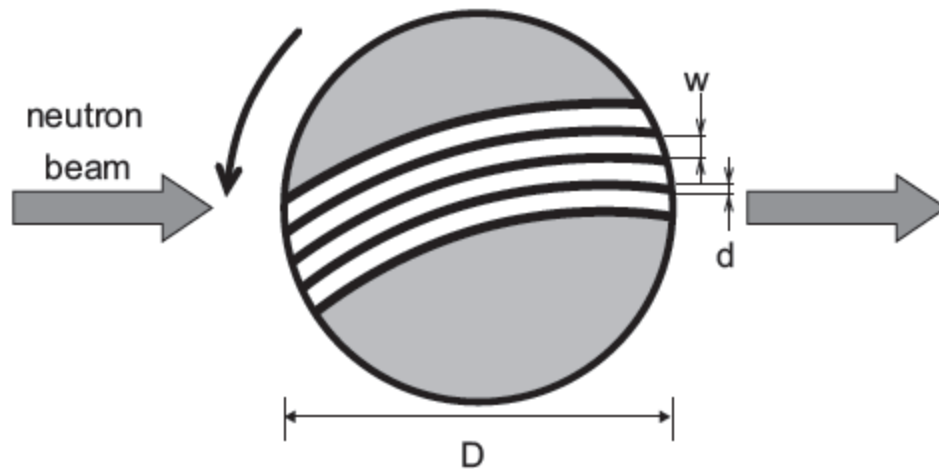
Fermi

T_0 cho

Disc chopper

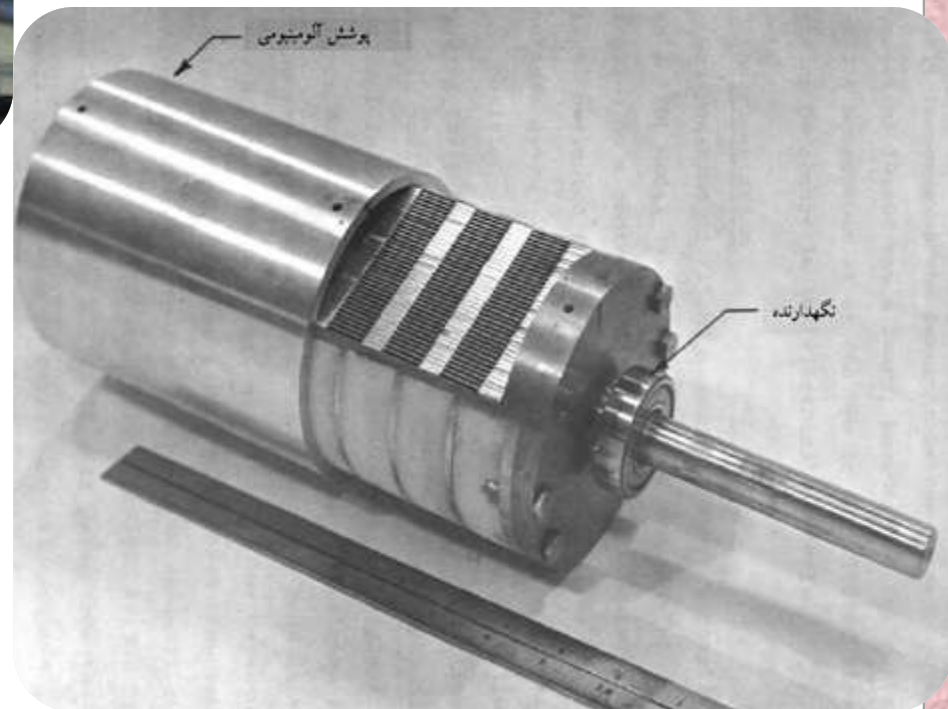


Schematic of a Fermi chopper

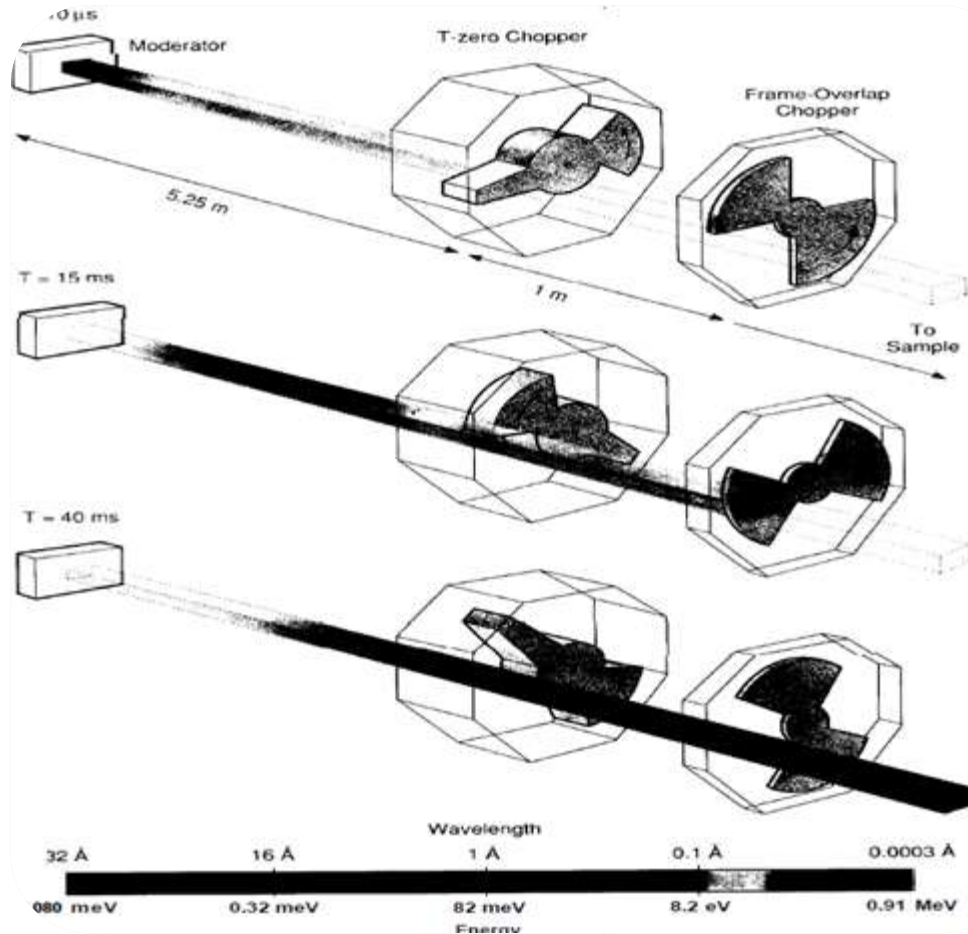
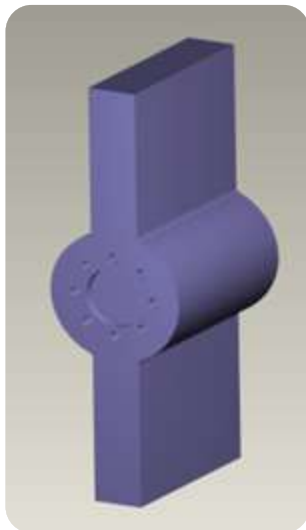
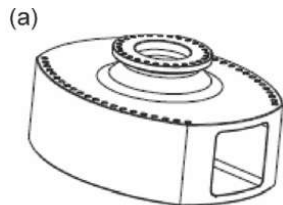


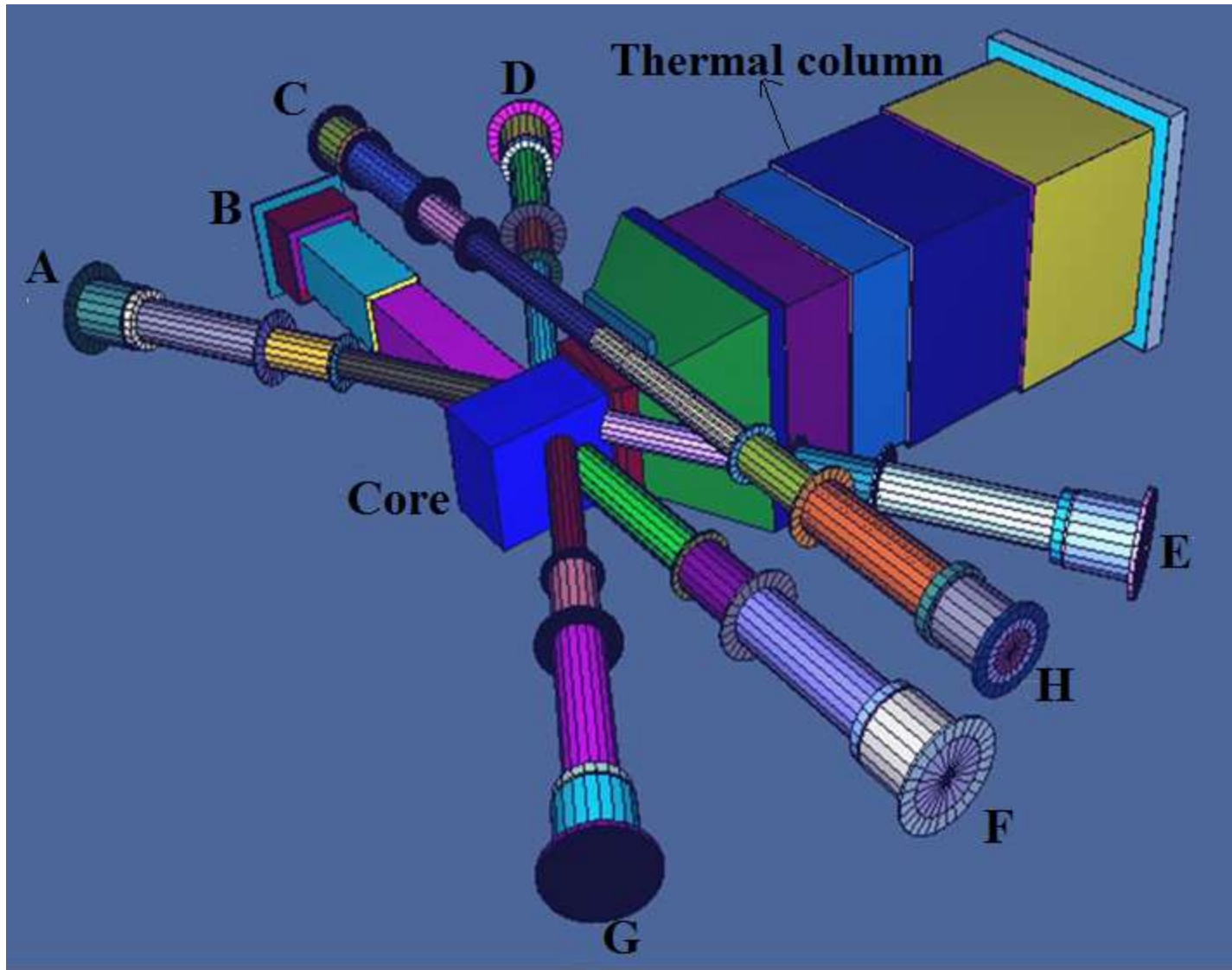


Fermi chopper

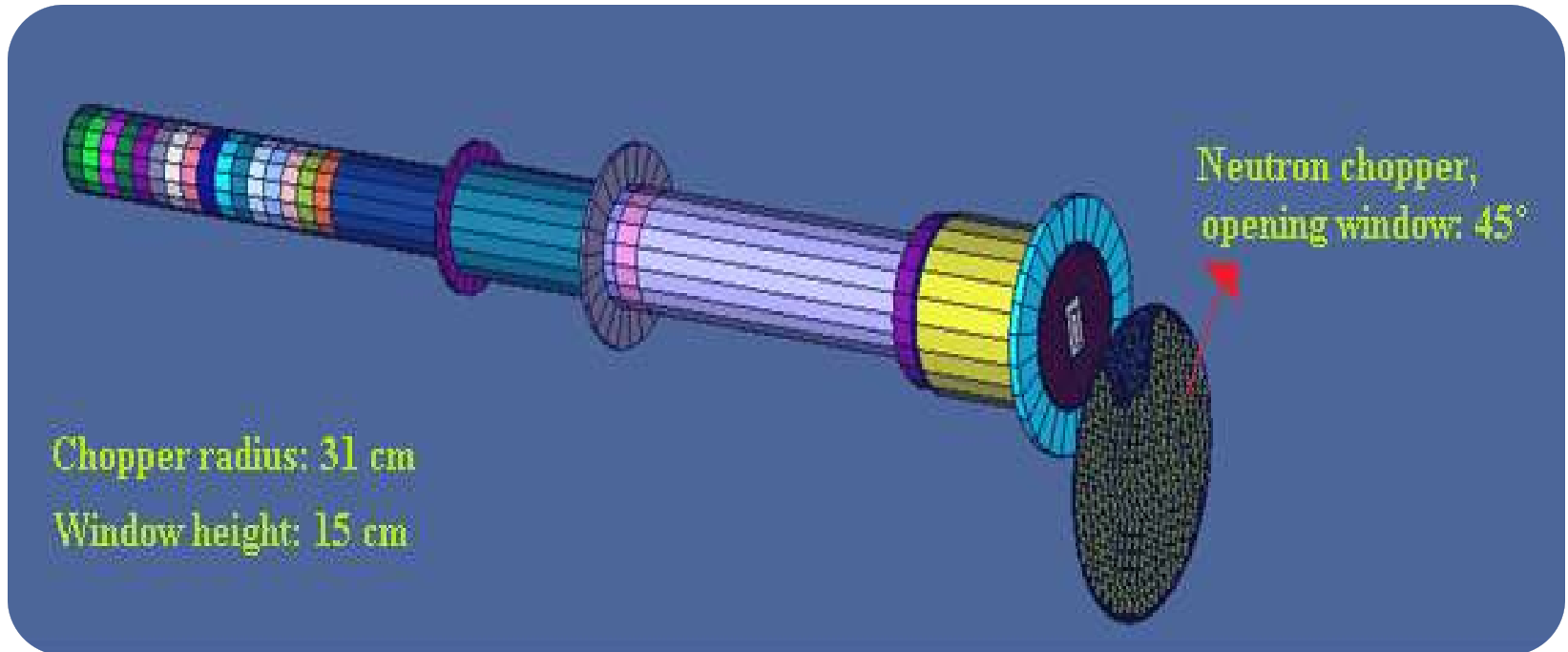


Schematic of a T_0 chopper

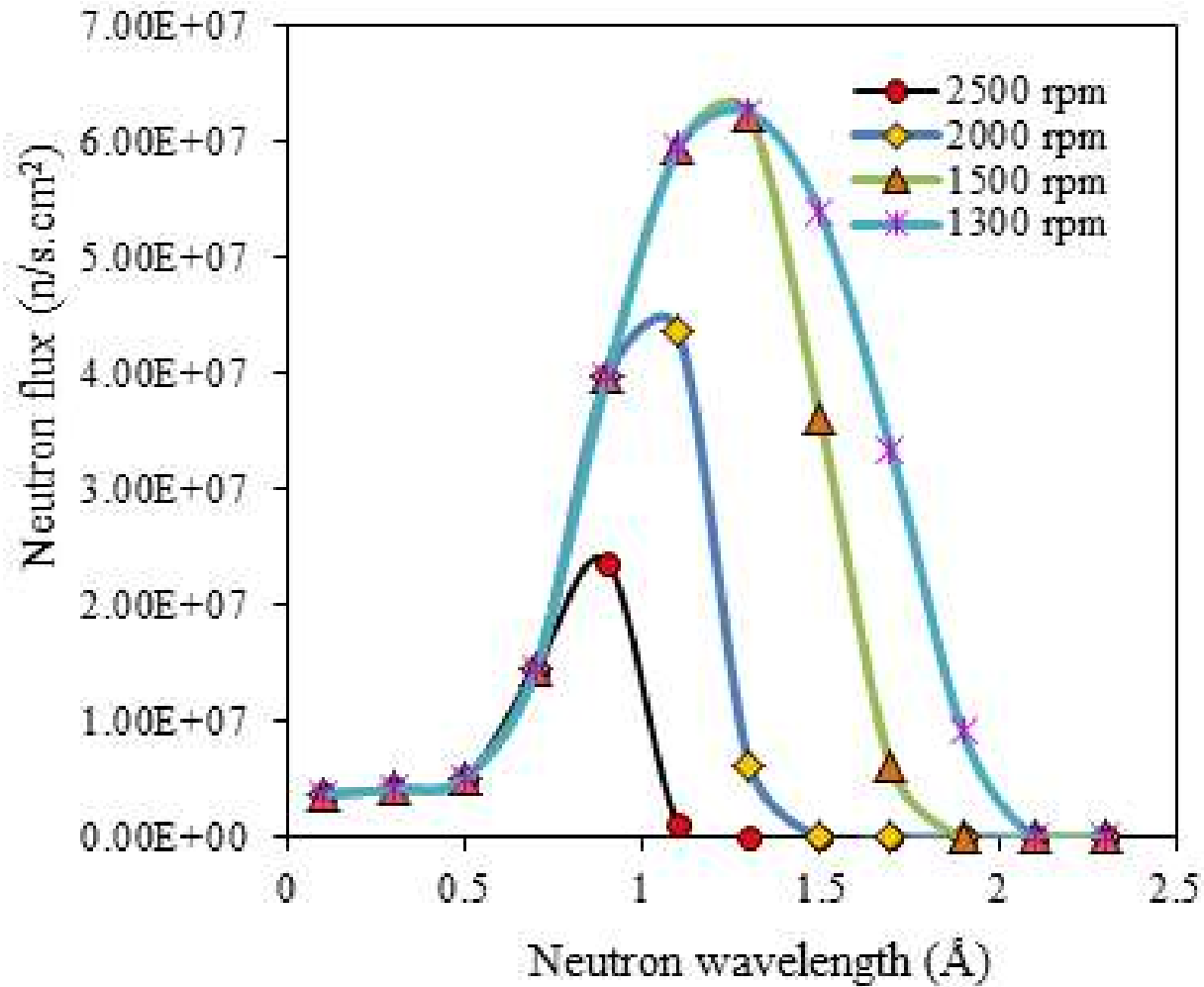




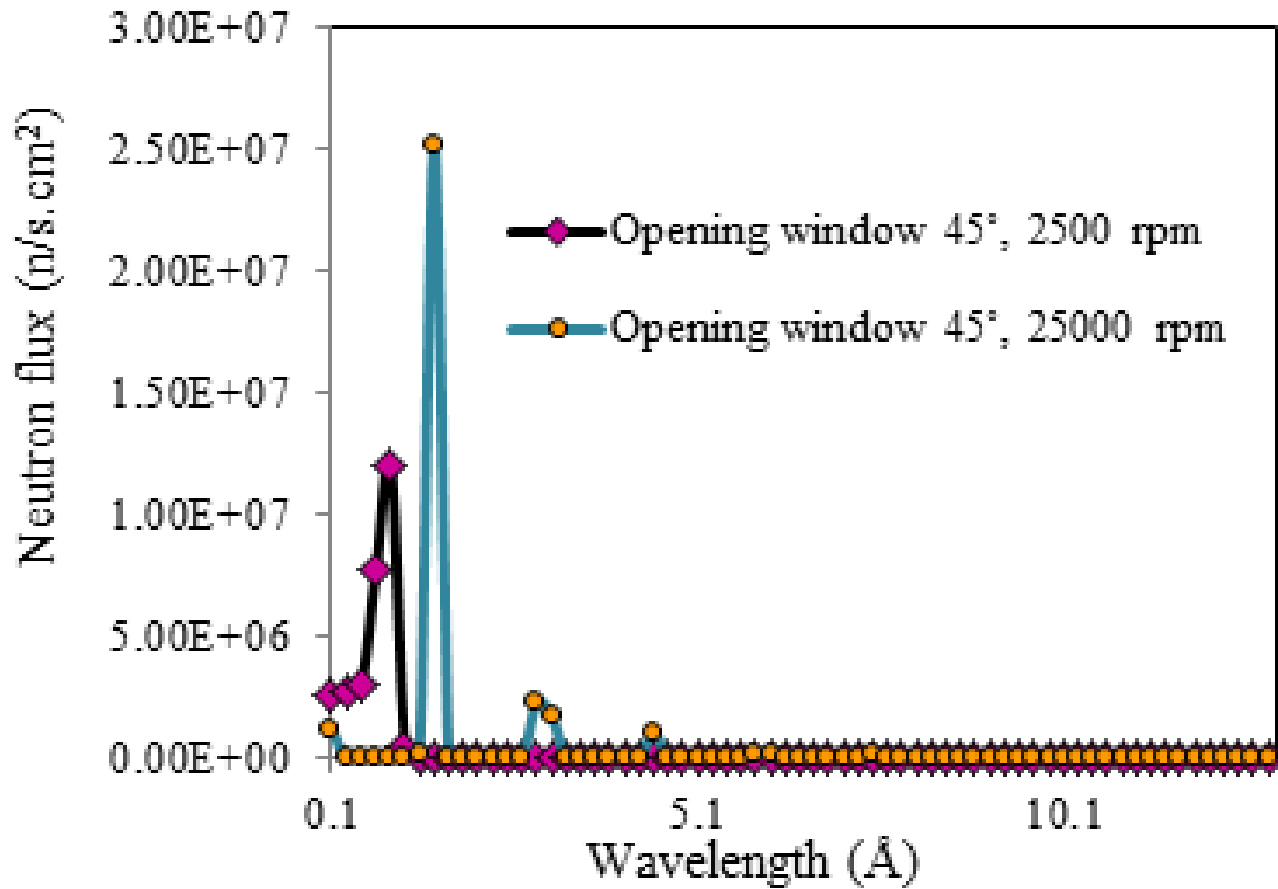
Disc chopper simulation for TRR: using Vitess3.3a code



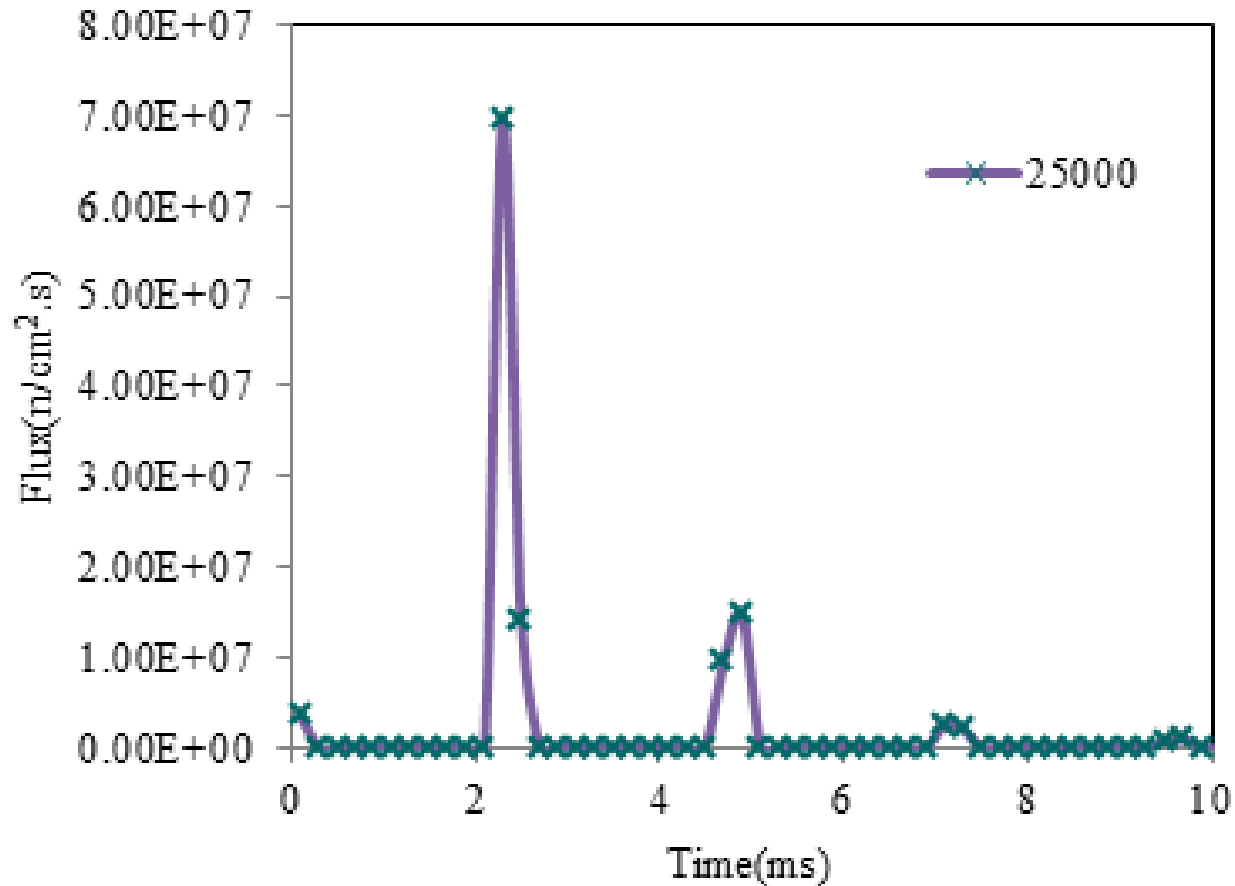
Different disc chopper rotation speeds

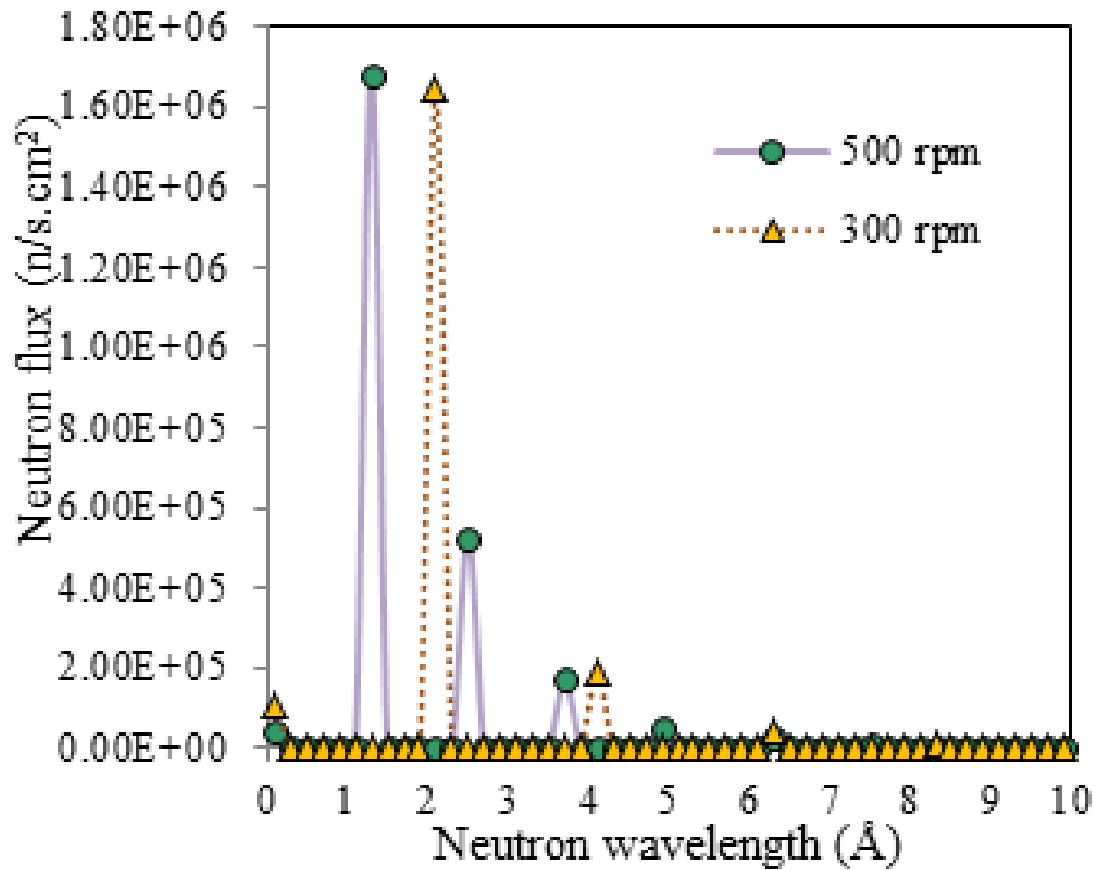


Comparison of low and high rotation speeds

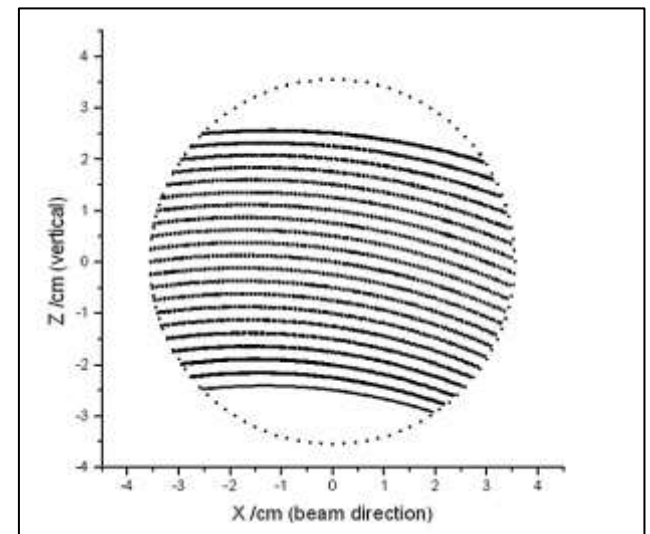


Disc chopper high-speed rotation effect on pulse width

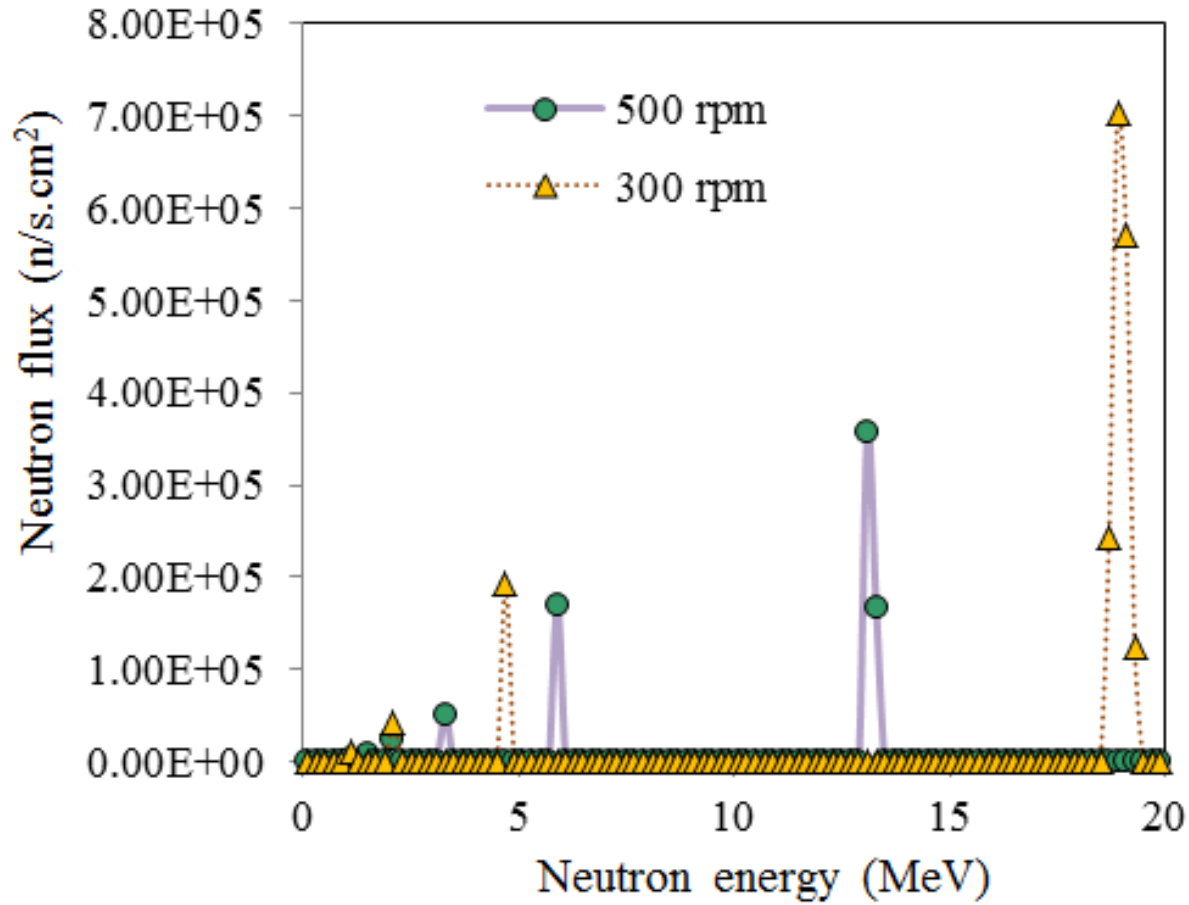




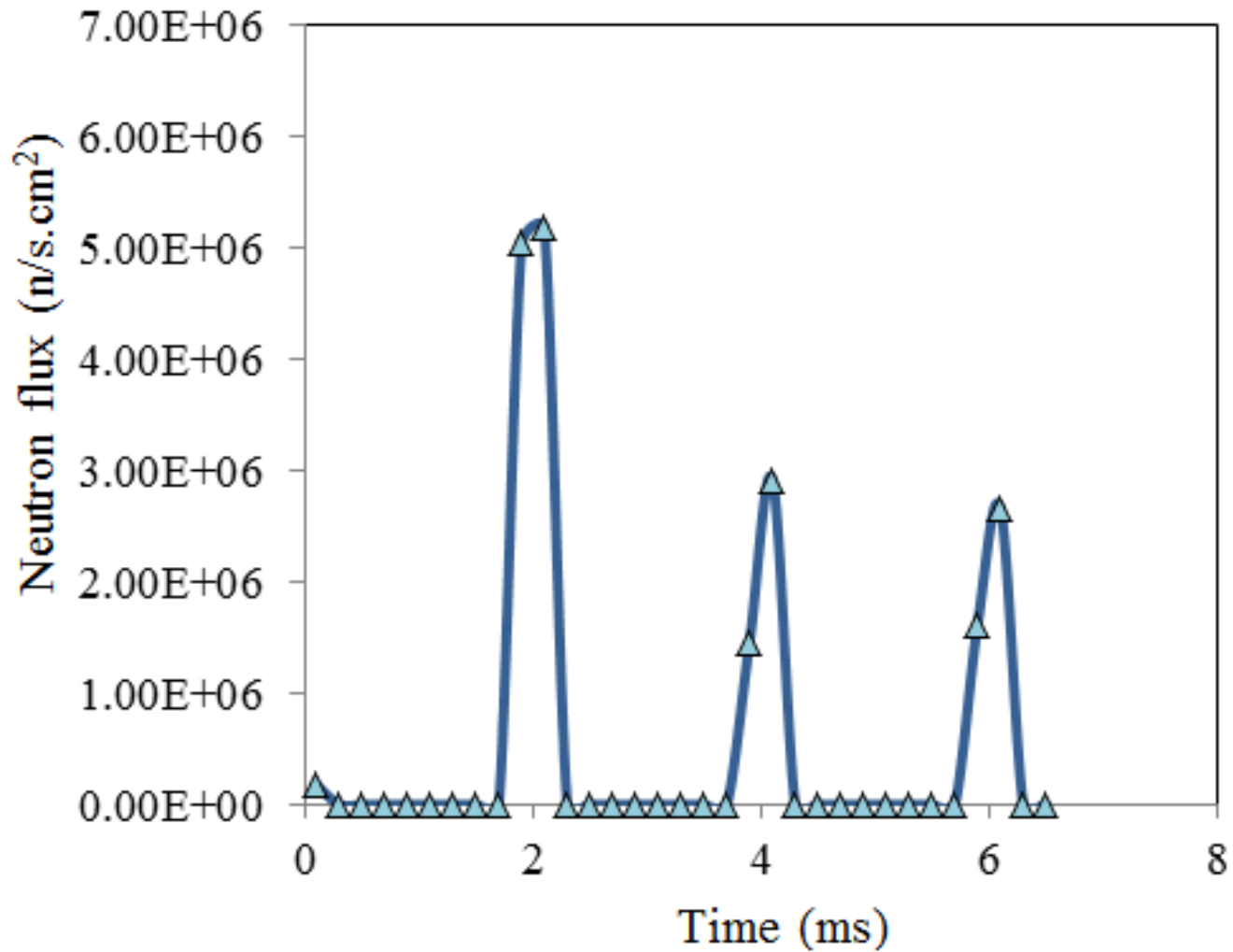
Fermi chopper

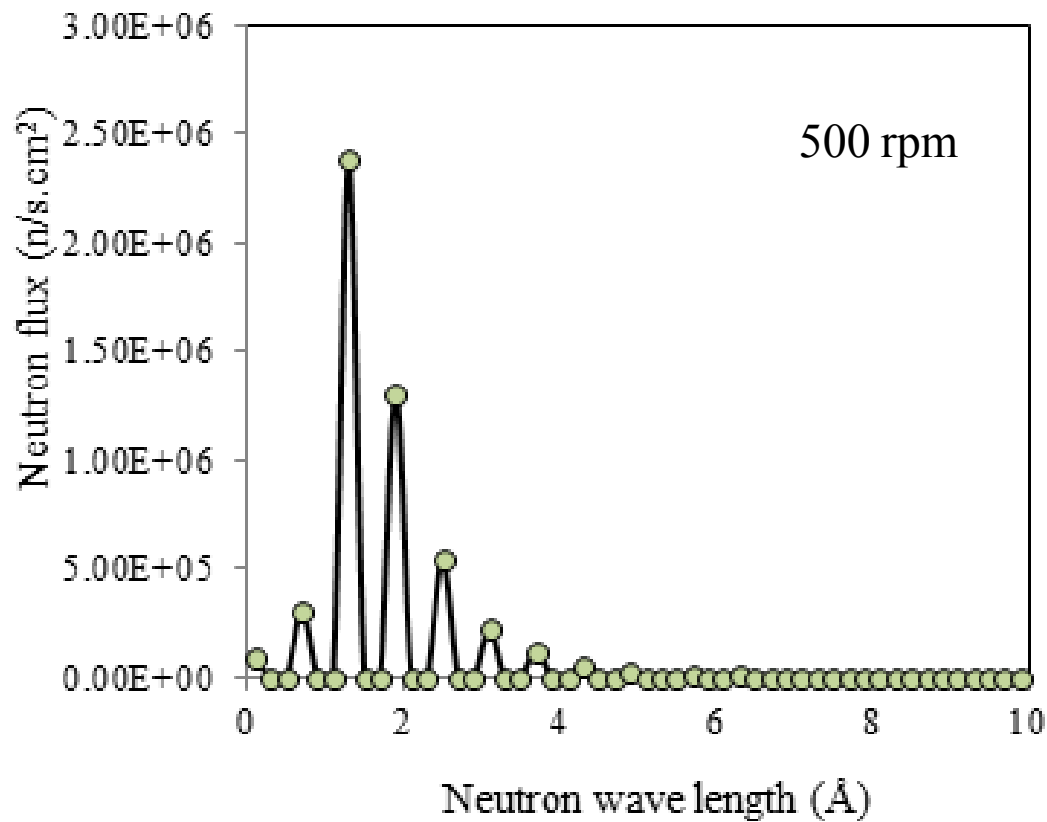


Fermi chopper energy contamination

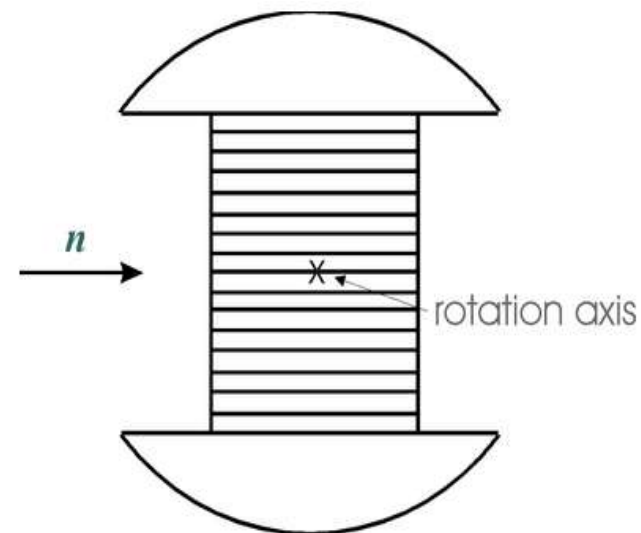


Fermi chopper pulse width

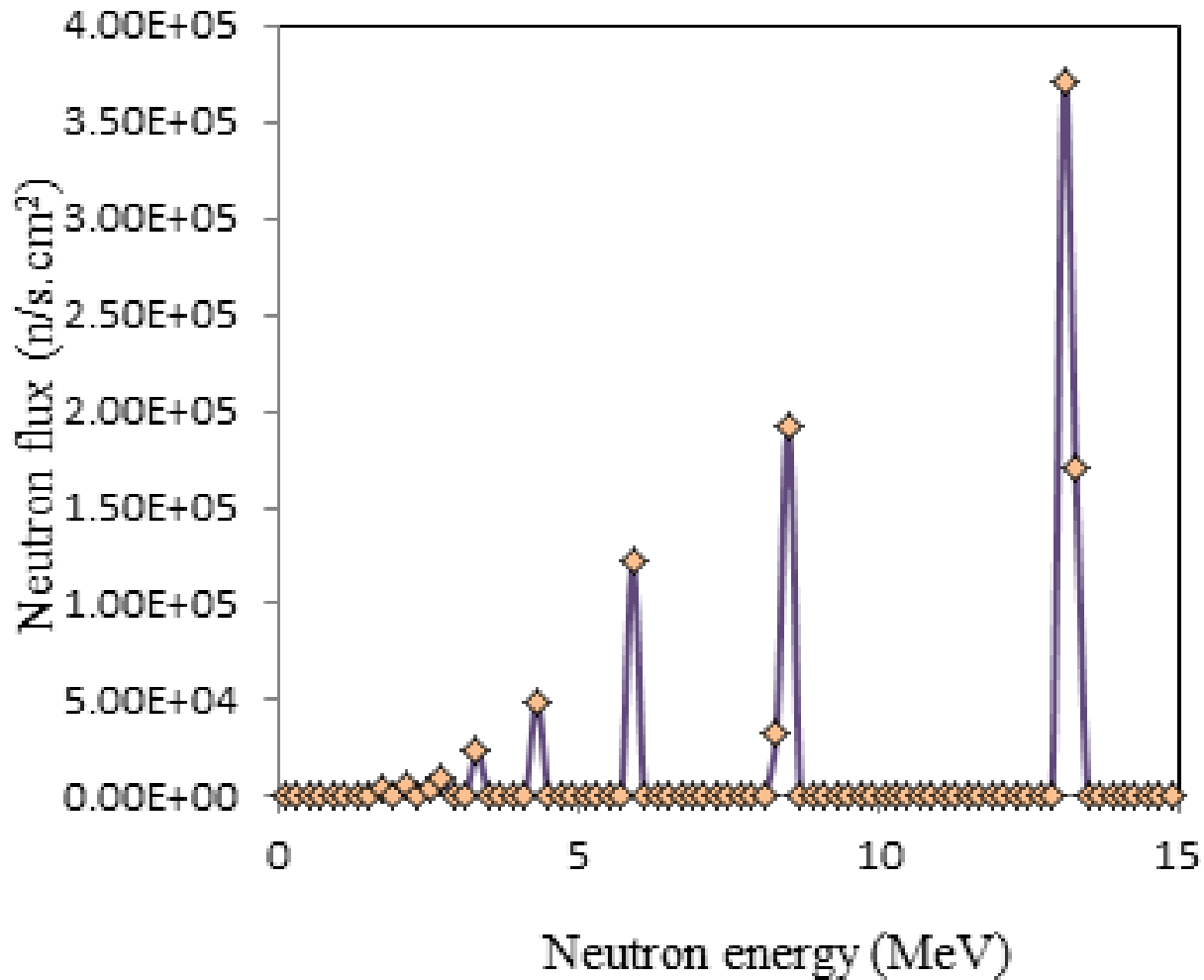




Direct Fermi chopper



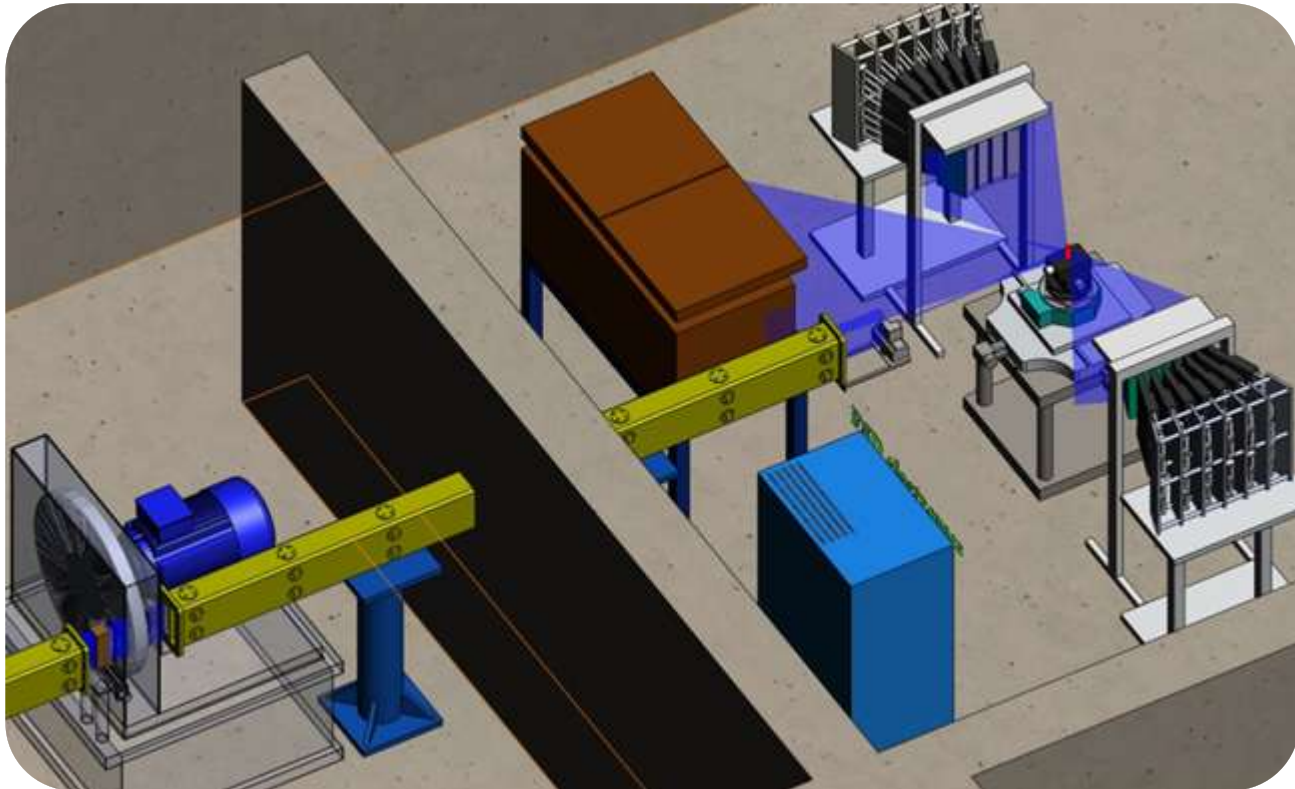
Direct Fermi chopper energy contamination



Conclusions

The Vitess results need to be benchmarked with the experimental data

The F beam tube of TRR can be equipped with Disc and Fermi choppers for producing a monochromatic beam.



اللَّهُمَّ صَلِّ عَلَى مُحَمَّدٍ وَعَلَى آلِ مُحَمَّدٍ



**IN MEMORY OF OUR NUCLEAR
SCIENTIST**



Thanks for your kind attention



Rudkhan Castle

A nice place in Gilan province in Iran

