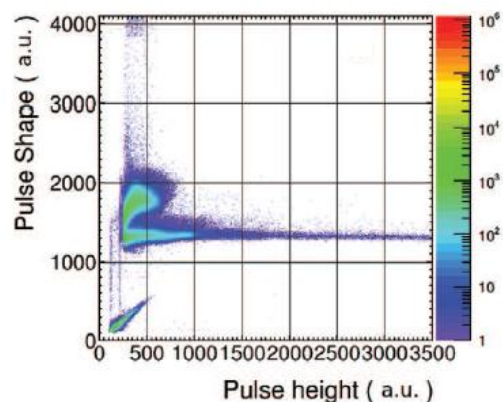


# Anomalous oscillatory features in neutron emission from D + D fusion in palladium at 100 keV implantation energy

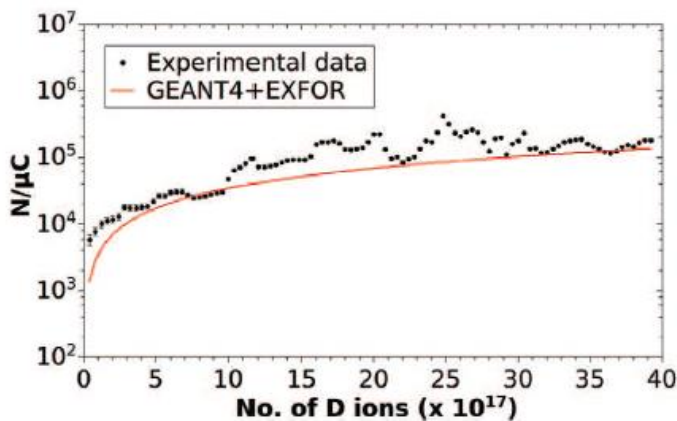
Neutron yield in D + D fusion in a palladium foil, kept at about  $-76\text{ }^{\circ}\text{C}$  temperature, has been measured as a function of the number of implanted  $\text{D}^+$  ions at a bombarding energy of 100 keV at ECR-NPD, BARC. A considerably large oscillatory pattern was observed riding on a systematic increment for the emitted neutron yield as a function of the number of implanted  $\text{D}^+$  ions. Such an oscillatory behaviour is in contrast with the expected neutron yield calculated using the bare D + D fusion cross-section. The present observation indicates that the bare cross-section is significantly affected due to the lattice effects of the host metal at large D/Pd atomic ratios.



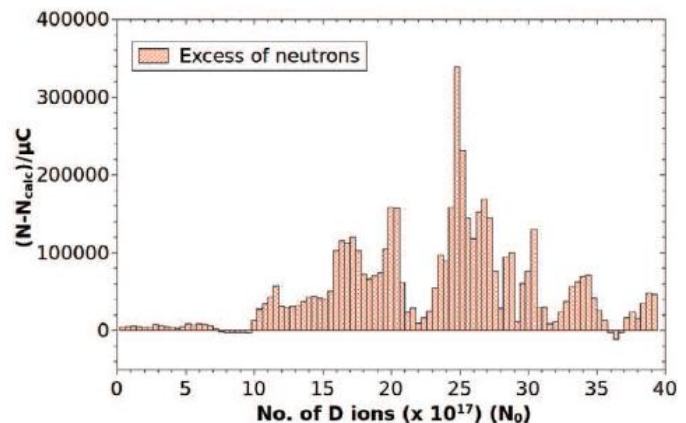
The photograph of the experimental setup at ECR-NPD, BARC.



2D plot of pulse shape vs. pulse height for the D + D reaction.



The experimental and simulated value of  $N/\mu\text{C}$  as a function of implanted  $\text{D}^+$  ions.



The excess (or deficiency) of neutrons with respect to the simulated value as a function of the number of implanted ions ( $N_0$ ).

## Ref. :

R. K. Choudhury, Ajay Kumar, R. G. Thomas, G. Mishra, A. Mitra, B. K. Nayak and A. Saxena  
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