

# MULTI-NUCLEON TRANSFER REACTIONS AND THEIR COUPLING EFFECTS ON FUSION EXCITATION FUNCTION

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The coupling of the internal degrees of the freedom of the colliding nuclei to the relative motion between them gives rise to a distribution of the barriers and hence, leading to the sub-barrier fusion cross section enhancement. The fusion excitation functions have been measured for  $^{28}\text{Si}+^{90,94}\text{Zr}$  systems around the Coulomb barrier to investigate the role of multi-nucleon transfer in the sub barrier fusion enhancement. It was observed that the enhancement of the sub-barrier fusion cross section was attributed to the effect of not only one and two nucleon transfer channels but also from the multi-nucleon contributions. From the measurements of the multi-nucleon transfer reactions for same systems, it was observed that the pairing correlation is an important phenomenon in nuclear physics which enhances the transfer probability of even number of pairs especially of two nucleon transfer. The transfer reaction angular distributions were also measured at a much above barrier energy and it was observed that sequential transfer of nucleons plays an important role at above barrier energies.

Nuclear  
Seminar

All interested  
persons are  
cordially  
invited to  
attend.