



Contribution ID: 114

Type: **Parallel Talk**

Systematic CDCC calculations of total fusion for ${}^6\text{Li}$ with targets ${}^{28}\text{Si}$, ${}^{59}\text{Co}$, ${}^{96}\text{Zr}$, ${}^{144}\text{Sm}$ and ${}^{209}\text{Bi}$. Effect of resonance states

Monday, 23 October 2017 15:00 (25 minutes)

CDCC calculations of total fusion cross sections for reactions of the weakly bound ${}^6\text{Li}$ with targets ${}^{28}\text{Si}$, ${}^{59}\text{Co}$, ${}^{96}\text{Zr}$, ${}^{144}\text{Sm}$ and ${}^{209}\text{Bi}$ at energies around the Coulomb barrier are presented. In the cluster structure frame of ${}^6\text{Li} \rightarrow \alpha + d$, short-range absorption potentials are considered for the interactions between the α and $-d$ fragments with the targets. The effect of resonance states ($l = 2, J^\pi = 3^+, 2^+, 1^+$) and non-resonance states of ${}^6\text{Li}$ on fusion is studied by i) omitting resonance states from the full discretized breakup space and ii) by considering only the resonance discretized space. A systematic analysis of the effect on fusion from resonance breakup couplings is carried out from light to heavy target masses.

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Session Classification: Parallel Sessions - NUC

Track Classification: Nuclear Structure, Nuclear Reactions and Exotic Nuclei