

Abstract Submitted
for the APR08 Meeting of
The American Physical Society

Level densities of residual nuclei from the reactions ${}^6\text{Li}$ on ${}^{58}\text{Fe}$ and ${}^7\text{Li}$ on ${}^{57}\text{Fe}$ ¹ BABATUNDE OGinni, STEVEN GRIMES, ALEXANDER VOINOV, ADEREMI ADEKOLA, Ohio University, CARL BRUNE, Ohio University, ZACHARY HEINEN, MICHAEL HORNISH, THOMAS MASSEY, Ohio University, CATALIN MATEI, Oak Ridge National Laboratory, DON CARTER, JOHN O'DONNELL, Ohio University — The reactions ${}^6\text{Li}$ on ${}^{58}\text{Fe}$ and ${}^7\text{Li}$ on ${}^{57}\text{Fe}$ have been studied; these two reactions give the same compound nucleus, ${}^{64}\text{Cu}$. The neutron, proton and alpha spectra were measured at backward angles, and the level densities of the residual nuclei from the particle evaporation spectra have been obtained. The contribution of the breakup mechanism to the reaction cross-section was studied from ${}^6\text{Li}$ on ${}^{197}\text{Au}$ reaction. The data obtained have been compared with Hauser Feshbach model calculations performed with HF and Empire codes. Three other reactions were also studied to see how level densities change as we move away from the nuclear stability line. These are: ${}^{18}\text{O}$ on ${}^{64}\text{Ni}$ reaction, this gives ${}^{82}\text{Kr}$ as compound nucleus which is on the stability line; ${}^{24}\text{Mg}$ on ${}^{58}\text{Fe}$, this gives ${}^{82}\text{Sr}$ as compound nucleus and ${}^{24}\text{Mg}$ on ${}^{58}\text{Ni}$ which gives ${}^{82}\text{Zr}$ as compound nucleus; these are two and four steps away from the stability line respectively. Some results are presented.

¹Support from DOE

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Date submitted: 11 Jan 2008

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