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Nuclear level densities of 64,66Zn from the analysis of neutron evaporation spectra ANTHONY PAUL RAMIREZ, ALEXANDER VOINOV, STEVEN GRIMES, THOMAS MASSEY, CARL BRUNE, Ohio University, AMERICO SALAS-BACCI, Los Alamos Nationa Laboratory — The neutron spectra from the reactions ^{63}Cu(d,n)^{64}Zn and ^{65}Cu(d,n)^{66}Zn have been measured using deuteron energies 6 and 7.5 MeV. These results have been compared with the cross sections obtained from the Hauser-Feshbach calculations using the EMPIRE code. Different level density models have been tested, which include three phenomenological (Gilbert-Cameron model, generalized superfluid model and enhanced generalized superfluid model) and one microscopic (Hartree-Fock-Bogoliubov microscopic model), and it was found that by using the Gilbert-Cameron model the calculated cross section closely agrees with the experimental results. We have also studied the non-compound component of the reactions by analyzing the neutron angular distributions. The non-compound component has been shown to be forward-peaked and is more pronounced at high neutron emission energies. We have also observed a slight enhancement of the non-compound contribution as the incident deuteron energy is increased.

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