

Abstract Submitted  
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**Study of the pure double folding optical model for 100 MeV/u deuteron scattering** KEVIN HOWARD, DARSHANA PATEL, UMESH GARG, University of Notre Dame — The centroid energies of the giant monopole resonance (GMR) in nuclei are important because they are directly related to the nuclear incompressibility, an important quantity in the nuclear equation of state. It is necessary to examine the properties of the GMR in nuclei far from stability using advanced experimental techniques. The optical model for deuteron scattering is important from the point of view of performing these studies in inverse kinematics. Most studies on deuteron optical potentials have been done at lower energies and using the phenomenological optical model. However this model has been shown to overestimate the cross-sections for the low-lying discrete state. Recent developments in theory allow for the optical model real and imaginary volume potentials to be calculated using a double folding model with the help of the computer code dfpd5. For the first time these calculations are used to model the elastic and inelastic angular distributions in  $^{28}\text{Si}$ ,  $^{58}\text{Ni}$ , and  $^{116}\text{Sn}$  nuclei. The experiment was performed at the Research Center for Nuclear Physics, Osaka University, Japan, using a 100 MeV/u deuteron beam. Results of the analysis will be presented.

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