

Abstract Submitted  
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**Investigation of even-even Gd nuclei using the (p, t) reaction**  
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nuclei between  $A=152$  and  $A=158$  undergo a rapid shape change, from spherical  
to deformed and are therefore interesting in nuclear physics studies. Experiments  
were performed at the 88 inch Cyclotron at Lawrence Berkeley National Laboratory  
using the STARS (Si-Telescope Array for Reaction Studies)/ Liberace (Livermore  
Berkeley Array for Collaborative Experiments) setup. Targets of  $^{154}\text{Gd}$ ,  $^{155}\text{Gd}$ ,  
 $^{156}\text{Gd}$ , and  $^{158}\text{Gd}$  were bombarded with 25 MeV protons. My research focused on  
 $^{152}\text{Gd}$ ,  $^{154}\text{Gd}$ ,  $^{156}\text{Gd}$  nuclei populated via (p, t) reactions and the work utilized a  
triton-gamma matrix for each nucleus. I am interested in the high energy ( $\geq 2.5\text{MeV}$   
nucleus excitation energy) part of the triton spectrum when gated by different low  
lying (yrast and non-yrast) gamma rays which I examined by measuring the slope.  
I also studied the position and intensity of the large peak-like structure lying close  
to the pair gap at 2.5 MeV and how it changes for  $N = 88, 90, \text{ and } 92$ . DOE: DE-  
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