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Investigation of the reaction $^{144}\text{Sm}(p, p')$ under extreme forward angles * — ●DIRK MARTIN¹, CARLOS BERTULANI³, BELASH BOZORGIAN¹, ANDREAS KRUGMANN¹, ANNA MARIA KRUMBHOLZ¹, PETER VON NEUMANN-COSEL¹, NORBERT PIETRALLA¹, IRYNA POLTORATSKA¹, JOHANNES SIMONIS¹, and ATSUSHI TAMII² —
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Recent experimental progress and development at RCNP Osaka, Japan [1], allows measurements with intermediate-energy proton beams at very forward angles combined with high energy resolution of the order $\Delta E/E \approx 8 \cdot 10^{-5}$. Using this setup, the total electric and magnetic dipole strength distributions can be extracted. In comparison with a simultaneous measurement on the well-deformed nucleus ^{154}Sm , an experimental study of ^{144}Sm allows to investigate the influence of the deformation on these strength distributions. Differential cross sections under $0^\circ - 4^\circ$ were determined. By comparison to theoretical predictions of Coulomb excitation using the eikonal approximation [2], the E1 character of the cross sections in the region of the GDR can be confirmed. A qualitative comparison to E1 strength obtained in $^{144}\text{Sm}(\gamma, \gamma')$ experiments at the S-DALINAC [3] is discussed.

[1] A. Tamii et al., Nucl. Inst. Meth. A 605, 326 (2009).

[2] C. A. Bertulani et al., Comp. Phys. Comm. 152 (2003) 317-340.

[3] S. Volz et al., Nucl. Phys. A 779 (2006) 1.

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