Abstract Submitted
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Studies of the Hg isotopes via reactions ALEJANDRA DIAZ VARELA, V. BILDSTEIN, P.E. GARRETT, A.T. LAFFOLEY, A.D. MACLEAN, E.T. RAND, C.E. SVENSSON, University of Guelph, G.C. BALL, TRIUMF, T. FAESTERMANN, Technische Universität München, R. HERTENBERGER, H.-F. WIRTH, Ludwig-Maximilians-Universität München — The ^{199}Hg isotope holds the most stringent upper limit for a nuclear electric dipole moment (EDM) to date. The experimental limit on the observed atomic EDM for ^{199}Hg is converted to a limit on the nuclear EDM via a calculation of the Schiff moment, requiring knowledge of the nuclear structure of ^{199}Hg. Ideal information to further contrain the ^{199}Hg Schiff moment theoretical models would be the $E3$ and $E1$ strength distributions to the ground state, and $E2$ transitions amongst excited states. While the high level density of ^{199}Hg makes those determinations challenging, complimentary information can be obtained from exploring surrounding even-even Hg isotopes.
As part of a campaign to study the Hg isotopes near ^{199}Hg, two reactions, $^{198}\mathrm{Hg}(d,d')^{198}\mathrm{Hg}$ and $^{198}\mathrm{Hg}(d,p)^{199}\mathrm{Hg}$, were studied using the Q3D spectrograph at the Maier-Leibnitz Laboratory (MLL) in Garching, Germany. A 22 MeV deuterium beam was used to impinge a $^{198}\mathrm{Hg}^{32}\mathrm{S}$ target. The (d,d') reaction allows us to probe the desired $E2$ and $E3$ matrix elements, while the *(d,p)* reaction provides information on the neutron single-particle states of ^{199}Hg. Work to date will be presented.

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