

Abstract Submitted
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Octupole correlations in light neutron-rich $^{143,144}\text{La}$ ¹ Y.X. LUO², J.H. HAMILTON, Vanderbilt University, J.O. RASMUSSEN, Lawrence Berkeley National Lab, A.V. RAMAYYA, Vanderbilt University, S.J. ZHU, Tsinghua University, Beijing, China, J.K. HWANG, Vanderbilt University — Intensive investigations have shown strong evidence of octupole deformations and/or correlations in $^{142-148}\text{Ba}$, $^{144,146}\text{Cs}$ and $^{145,147}\text{La}$. In the present work the high-spin level scheme of light neutron-rich ^{143}La is expanded and that of ^{144}La is proposed for the first time by measuring prompt gamma rays from the spontaneous fission of ^{252}Cf at Gammasphere. $B(E1)/B(E2)$ ratios, energy displacement $\delta E(I)$ and the rotational frequency ratios $\omega^-(I)/\omega^+(I)$ of the new parity-doublets of $^{143,144}\text{La}$ indicate that octupole correlations also develop in these light neutron-rich La isotopes. Based on CSM calculations the band-crossings observed in a rotational frequency range of 0.31 to 0.34 MeV for the two even-parity bands in ^{143}La are interpreted as due to alignment of a pair of $i_{13/2}$ neutrons in the nucleus.

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