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E3 decaying isomers and octupole collectivity in the vicinity of 208Pb

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Nuclei in the vicinity of doubly-magic ones often exhibit isomeric states arisen due to the low energies and/or high multipolarities of the gamma rays depopulating them. Around ^{208}Pb these long-lived states often decay by electric octupole (E3) transitions. Their transition strength give information about their nature. In this region these can be collective, explained by the large number of Δl=Δj=3 orbital pairs across Z=82 and N=126, forming a vibrational phonon with B(E3)~35 W.u. at ~2.6 MeV. Or they can be of single-particle nature, connected to the presence of a non-natural parity high j orbitals in all four shells around ^{208}Pb. Alternatively, they can be mixed.
This contribution will discuss the structure of nuclei in the vicinity of ^{208}Pb, with emphasis on isomeric states and the role of octupole collectivity.

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