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Nuclear Shapes and Shape Coexistence at the IoI's (with a Kumar twist)

lundi 4 novembre 2024 14:40 (20 minutes)

I will present several examples of shape coexistence in neutron rich doubly magic nuclei -always in the framework
of SM-CI calculations in the laboratory frame- that are the portals
to the Islands of Inversion at N=20, 40, and 50. I will pay particular attention to the case of ^{32}Mg where
the semi-magic configuration and the deformed and superdeformed intruders mix in a very peculiar way.
I will take advantage of the Kumar invariants to discuss the meaning and limitations of the concept of nuclear shape,
We have been able to compute recently, without any
approximation, the higher order invariants (up to Q^6) that make it
possible to evaluate β and γ and their the variances. The conclusions
are that β is softer that usually assumed, and that the γ span at
1σ is typically of 20-30o, at odds with the image of rigid triaxiallity.

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