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Evolution of collectivity and symmetry in nuclei

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Content :

Evolution of collectivity and symmetry in nuclei

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Studies of extreme nuclear shapes fascinated scientists and are pursued over decades.

Nuclei present

themselves with interesting shapes and structures at different spin, excitation

energy and also with

number of neutrons and protons present. Gradual alignment of single particle states

in presence of

collective excitational modes give rise to rich nuclear structure phenomena as a

function of angular

momentum in nuclei. Results from in beam fusion evaporation reaction experiments give

insight to

variety of nuclear structure and give opportunity to test nuclear models.

A large number of research groups have carried out such studies using the INGA array

of 24

suppressed clover detectors at IUAC in recent years. Few of the recent spectroscopic

studies done using

Indian National Gamma Array at Inter University Accelerator Centre, New Delhi,

on \mathbb{K} -vibrational

band, Octupole correlation, Chirality, magnetic and anti magnetic rotation will be

presented.

Some of the ancillary devices such as plunger (for lifetime measurement), charged

particle detector

array developed at IUAC will be coupled to INGA in coming months. INGA would also be

coupled to

mass spectrometer HYbrid Recoil Analyser (HYRA) for next experimental campaign at

IUAC.

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