

“ Shell Model and Collective Models in Nuclei: experimental and theoretical perspectives”

Prof. Richard F. Casten (Yale U./JUSTIPEN Guest)

講義内容

Lecture 3: Introduction to nuclear structure and the Independent Particle Model (IPM)

[Key words/phrases]: Geometric models, algebraic models -- the Interacting boson approximation (IBA) model: the CQF and simple, universal classes of predictions.

Simple approaches to mapping structure into the symmetry triangle - the method of Orthogonal Crossing Contours (OCC). Evolution of structure, including recent work on Quantum Phase Transitions (QPT) and Critical Point Symmetries (CPS).

Lecture 4: Collective behavior in nuclei and its microscopic drivers -- tying the threads together via (primarily) the p-n interaction.

[Key words/phrases]: Further insights into geometrical models and the IBA, QPT and critical point symmetries, empirical signatures of QPTs. Refinements to CPS..

The microscopic drivers of structural change and changes in shell structure? -- the p-n interaction. p-n interactions near doubly magic nuclei -- simple interpretation in terms of spatial overlaps. Correlation of empirical p-n interactions with the onset of collectivity and deformation.

Comparisons with Density Functional Theory calculations and tests of different microscopic interactions.

Sensitivity of masses to structure -- masses as an important observable, complementary to spectroscopic observables.

2010年1月7日(木) 1コマ目 : 13:30 ~ 15:00

休憩

2コマ目 : 15:30 ~ 17:00

会場 : 仁科ホール、理研

This Lecture will be given in English.

Contact:

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