

"One-particle motion in nuclear many-body problem"

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講義内容

As an example of collective motion based on particle-hole excitations, a view of various kinds of so-called giant resonance (GR) is given. In contrast to low-lying collective modes (for example, 2^+ and 3^- collective states), the properties of GRs are insensitive to the one-particle shell-structure around the Fermi level.

We start with (model-independent) sum rules, the major part of which are often consumed by respective GRs. Then, both GRs as excitations within the same nuclei and charge-exchange GRs (excitations to the neighboring nuclei) are described, taking examples mostly from stable nuclei where experimental data are available. Finally, some characteristic features of charge-exchange GRs in nuclei far away from the beta-stability line are mentioned.

Since the degrees of freedom corresponding to giant resonances are often not included in calculable theoretical models (ex. shell model), the presence and the properties of GRs appear as a renormalization of one-particle operators to be used in such models.

2008年12月24日(水) 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 Japanese.

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