Contribution ID : **128** Type : **Poster 0vbb**

Examination and improvement of nuclear matrix elements of double-β decay in QRPA approach

Authorship annotation

Session and Location

Monday Session, Poster Wall #35 (Auditorium Gallery Right)

Abstract content

My presentation will be on the nuclear matrix element (NME) of the neutrinoless double-β decay for determining the effective neutrino mass. The quasiparticle random-phase approximation (QRPA) is used in my study for calculating the nuclear wave functions. In my poster, the calculated NMEs will be presented for ^{150}Nd and ^{48}Ca, and the improvements and examinations that I have exploited in the last several years will be shown. I introduce a virtual decay path consisting of two-particle transfers. This path has to give the same NME as that by the real double-β path. This constraint determines the strength of the isoscalar proton-neutron pairing interaction. This method is one of the most useful achievements of my study. I also reproduce the experimental spin-flip charge-exchange transition-strength functions by (p,n) and (n,p) reactions involving ^{48}Ca and ^{48}Ti. This calculation gives an important check of the transition density included in the NME.

Poster included in proceedings:

yes

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Session Classification : Poster Session Monday

Track Classification : Poster (participating in poster prize competition)