ID de Contribution: **24** Type: **Non spécifié**

Shell-model half-lives for r-process waiting point nuclei including first-forbidden contributions

mercredi 10 octobre 2012 12:00 (25 minutes)

We have performed large-scale shell-model calculations of the
half-lives and neutron-branching probabilities of the r-process
waiting point nuclei at the magic neutron numbers N=50, 82, and 126. The calculations include contributions from allowed Gamow-Teller and, for the first time, also from first-forbidden transitions. We find good agreement with the measured half-lives
for the N=50 nuclei with charge numbers Z=28-32 and for
the N=82 nuclei 129Ag and 130Cd. The contribution of forbidden transitions reduce the half-lives of the N=126 waiting point nuclei significantly, while they have only a small effect on the half-lives of the N=50 and 82 r-process nuclei. We also discuss the kexi approximation used in FF transitions and found that it is not a very good approximation when FF should be considered in the half lives.

Auteur principal: Dr ZHI, Qijun (TU Darmstadt)

Co-auteurs: CAURIER, ETIENNE (IPHC Strasbourg); Prof. MARTÍNEZ-PINEDO, Gabriel (TU Darmstadt); Dr CUENCAG-GARCIA, J J (GSI); Dr SIEJA, Kamila (Institute Pluridisciplinaire Hubert Curien); Prof. LANGANKE, Karlheinz (GSI)

Orateur: Dr ZHI, Qijun (TU Darmstadt)

Classification de Session: Recent progress in shell model and other approaches to nuclear structure

Classification de thématique: Recent progress in the nuclear shell model and other approaches to nuclear structure