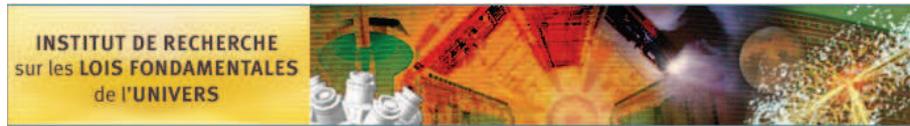


Service de Physique Nucléaire



Séminaire

le vendredi 31 mars 2017 à 11h

CEA Saclay, Orme des Merisiers, Bât. 703, Salle 45

Superaligned Fermi β decay – Recent progress using γ and β spectroscopy at TRIUMF-ISAC

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Over the past several decades, some of the most precise tests of the Model have originated from β -decay experiments. Even in today's era the LHC, β -decay continues to be a unique probe of physics beyond the Standard Model. Advances in the production of beams of radioactive nuclei have allowed tremendous progress in high-precision studies, such as measurements of Fermi superallowed β emitters at the TRIUMF-ISAC facility. Spurred by the new quantity of high-precision data, new theoretical efforts have reduced the uncertainty of small, but important, corrections to the experimental data. This, in turn, has led to new experiments targeted at testing specifically the theoretical calculations, and in general the nuclear structure knowledge on which they are based.

We have pursued a programme of very-high precision measurements of superallowed Fermi β^+ emitters using both β and γ -ray spectroscopy at the TRIUMF-ISAC facility. From the humble beginnings of a single 4π gas counter for β particles, through the utilization of the 8π and finally GRIFFIN γ ray spectrometers, the development of instrumentation has led to an unprecedented level of detail to be observed in the superallowed Fermi decays. Further, a complementary programme of transfer reactions has motivated additional experiments aimed at understanding the nuclear structure of the daughter nuclei.

An overview of the superallowed Fermi β -decay physics will be presented focusing on the CKM matrix unitarity tests. Details of the experimental programme using β and γ -ray spectroscopy at the TRIUMF-ISAC facility will be given with selected highlights of our programme and its impact over the past 10 years.

Le café sera servi 10 minutes avant

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http://irfu-i.cea.fr/Phocea/Vie_des_labos/Seminaires/index.php