ID de Contribution: **34** Type: **Non spécifié**

Dimensional transition of weakly-bound three-boson systems

vendredi 17 octobre 2014 15:00 (40 minutes)

A remarkable effect related to the dimensionality of the system occurs in the spectrum of three-boson systems in the universal limit of short-range interactions when passing from three (3D) to two (2D) dimensions. In this case, for a two-body energy (E_2) equal zero, the infinite number of three-body bound states, which comes as a consequence of the Efimov effect, disappears because in 2D there is only one scale given by E_2, such that the three-body bound states (there are only two in 2D) are proportional to this two-body energy. Thus, considering this drastic effect on the energy spectrum it is not a surprise that other measurable quantities like, e.g., single-particle momentum distributions be also seriously affected by a dimensional crossover. In this presentation, we will show how different the single-particle momentum distributions for three bosons interacting by a zero-range potential can be in 2D and 3D. By “squeezing” one of the Jacobi momenta we will also show how the three-body energy spectrum changes when passing continuously from 3D to 2D.

Auteur principal: Dr YAMASHITA, Marcelo (IFT)

Orateur: Dr YAMASHITA, Marcelo (IFT)

Classification de Session: Efimov Physics and Miscellaneous