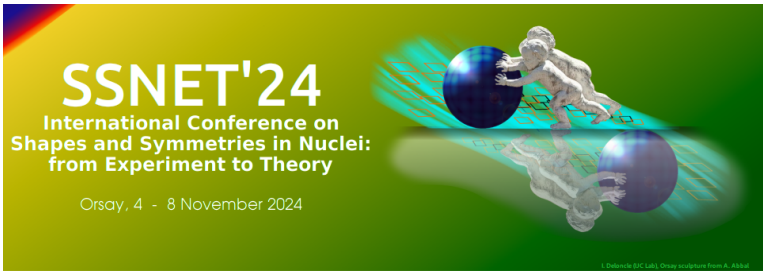

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Ab initio calculations of clustering and reactions

jeudi 7 novembre 2024 10:00 (20 minutes)

The emergence of collective modes such as nuclear clustering has a profound effect on reactions that occur in stellar interiors. Thus, a good description of astrophysical reaction rates needs to properly take into account the clustering (and deformation) aspects of nuclear structure. To demonstrate how this phenomenon arises from the fundamental nuclear interaction we apply the no-core shell model with continuum (NCSMC), a unified approach for structure and reactions. We will discuss applications of the NCSMC to various reactions of astrophysical interest, the description of alpha clustering, as well as leverage its unique properties to connect existing experimental data to currently unmeasured reaction rates.

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