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Séminaire

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# Collective modes in deformed and superfluid systems within the ab-initio QFAM


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## 2 pm, 11 Dec. 2020

Zoom:
https://ijclab.zoom.us/j/96661795262?pwd=RVZLZmRkM21aT2ltMVFUa3hraCtZQT09


How a many-body system behaves under an external perturbation gives appreciable information about its structural and dynamical properties.

Most notably, the underlying degrees of freedom may respond coherently, leading in atomic nuclei to the phenomenon of giant resonances.

Until recently, the preferred approach to the theoretical description of these excitations -in terms of two-quasiparticle excitations- was the obscurely named Quasi-particle Random Phase Approximation (QRPA). Although widely applicable, the QRPA is plagued by a prohibitive complexity.

Recently, such a limitation has been largely lifted through a reformulation of the problem.

After a hopefully gentle reminder of finite-temperature quantum mechanics, I will present some first results obtained in superfluid and deformed nuclei when the underlying interaction between nucleons is derived from a somewhat realistic model of low-energy QCD.



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