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Nuclear incompressibility from spherical and deformed nuclei

The problem of the nuclear incompressibility is a longstanding one. Deducing the incompressibility of nuclear matter from the compression modes of finite nuclei is not straightforward [1]. Whereas some consensus has been reached that from magic nuclei the value of the incompressibility K should be around 240 MeV, this number comes anyhow from the analysis of isoscalar giant monopole and dipole in magic nuclei only.
There are new measurements in open-shell nuclei that point to lower values of the nuclear incompressibility. Also, deformed nuclei are becoming object of increasing interest.
In axially deformed nuclei, the K=0 components of the monopole and quadrupole resonances are coupled. This fact is likely to affect the extraction of the nuclear incompressibility K, and we focus on the following questions in the present contribution: how does the monopole-quadrupole coupling affect the extraction of K from the monopole measurements in deformed nuclei? Is the incompressibility affected by deformation?
Theoretical arguments and results from quasi-particle Random Phase Approximation (QRPA) will be presented and critically discussed.

[1] U. Garg, G. Colò, "The compression-mode giant resonances and nuclear incompressibility", Prog. Part. Nucl. Phys. (2018).

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