
DYNAMICS OF LOW-LYING MODES

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The time-dependent Hartree-Fock (TDHF) method [1] can be used to simulate various processes of nuclear dynamics, including collective excitations of single nuclei. As a theory from which RPA may be obtained as a limiting case, TDHF has the capability of exploring linear response to external electromagnetic probes, as well as other, less standard, excitations.

We present results exploring novel ways in which collective modes may be excited in the TDHF framework. In particular, we highlight methods in which external probes can be used to exciting e.g. the valence neutrons to explore pygmy strength in specific nuclides, such as ^{76}Se [2], demonstrating a link between the collective motion of particular orbitals and the associated energy range of the excitation. We also highlight our recently-published TDHF code, available for use in exploring collective modes [1].

REFERENCES

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