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Title: **Cranking in isospace – towards consistent mean-field description of $N = Z$ nuclei**
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Cranked mean-field model has proven to be one of the most successful tools used to describe high-spin states of atomic nuclei in a microscopic way. Since the concept of cranking can be viewed as the lowest order projection onto good angular momentum it can be easily and rather naturally extended to project out good isospin by introducing auxiliary routhian $\hat{H}^\omega = \hat{H} - \omega\hat{t}_x$ with a constraint $\langle\hat{t}_x\rangle = \sqrt{T(T+1)}$ in complete analogy to a case of spatial rotations.

The aim of this paper is to present applications of isospin-cranked mean-field model to isobaric excitations in even-even [T=0,1,2 states] and odd-odd [T=0,1] $N = Z$ nuclei. The microscopic structure of these states nicely reflects various aspects related to a response of nuclear pairing against iso-rotations and $2qp$ excitations showing, in many cases, beautiful analogies to the well known high-spin phenomena. The character [calculation scheme] of these fundamental excitations in $N = Z$ nuclei is schematically depicted in left part of Fig. 1. Right hand side of Fig. 1 shows calculated and empirical excitation energies, see Ref. [1] for more details.

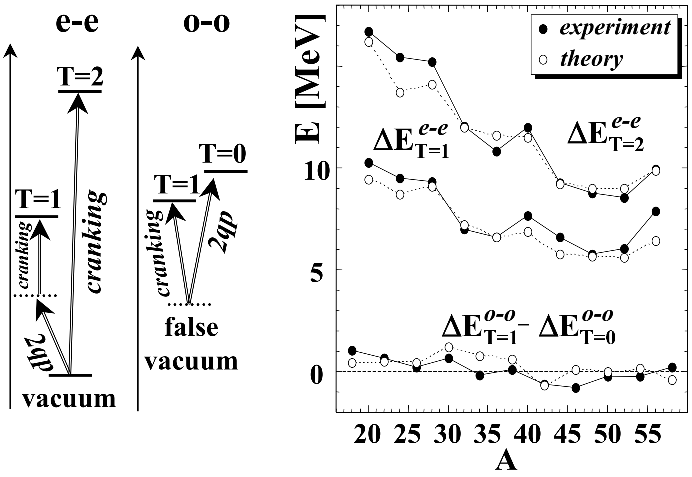

Figure 1: Schematic illustration of the calculation scheme [left] applied to compute excitation energies of T=0,1, and 2 isobaric excitations in N=Z nuclei [right].

References

[1] W. Satuła and R. Wyss, nucl-th/0010041; nucl-th/0011056

Invited talk.