

SELF-CONSISTENT APPROACH TO BETA-DECAY OF NEUTRON-RICH NUCLEI

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The global beta-decay calculations are presented which are based on the Density Functional developed by Fayans et.al. [1] and Continuum Quasiparticle Random-Phase Approximation. The DF3+CQRPA model [2] describes the data on the half-lives and probabilities of delayed neutron emission for more than 200 (quasi) spherical nuclei with $Z = 18 - 52$ and $T_{1/2} < 5c$ within the factor of 2 and 3 correspondingly (Fig.1). A detailed comparison with modern self-consistent models: spherical RHB + RQRPA [3], deformed FAM [4] and HFB + QRPA [5] is performed. The "sudden shortening" of the β -decay half-lives found in RIKEN for the Ni isotopes crossing the major neutron shell at $N=50$ [6] are addressed (Fig.2). The performance of "beyond the QRPA models" in explaining beta-decay acceleration in the $78,79\text{Ni}$ is discussed. Supported by the grant of Russian Foundation for Basic Research (RFBR 18-02-00670).

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