

## **Systematic Studies of Odd Isotopes in Vicinity of Closed Shell Z=50**

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The isotopes in vicinity of the closed shell Z=50, the long chain of odd Te isotopes from  $^{119}\text{Te}$  to  $^{131}\text{Te}$ ,  $^{125}\text{Sn}$  and  $^{123}\text{Sn}$ , have been investigated by means of (d,p), (d<sub>pol</sub>,p), (d<sub>pol</sub>,t), ( $^3\text{He}$ , $\alpha$ ) and (n, $\gamma$ ) reactions. The mutually complementary methods enable us to construct extensive and complete level and decay schemes. Using these schemes we study the systematics of both positive and negative parity states. The experimental data were interpreted within the framework of the Interacting Boson Fermion Model (IBFM) and Quasiparticle Phonon Model (QPM). The main goal of this project is the evolution of the nuclear structure in dependence on the gradual change of the number valence nucleons. Additional results are the experimental distribution of  $2f_{7/2-}$ ,  $2f_{5/2-}$ ,  $3f_{3/2-}$  and  $3f_{1/2-}$  strengths, the explanation of the unusual population of isomeric  $h_{11/2}$  states, the investigation of the mechanism of thermal neutron capture in the vicinity of the closed shell, new values of thermal neutron capture cross sections and isomeric ratios, and precise values of neutron binding energies. All this will be discussed and commented.