

SPECTROSCOPY OF CROSS-CONJUGATE NUCLEI ^{46}Ti - ^{50}Cr AND ^{47}V - ^{49}Cr NEAR THE $f_{7/2}$ -SHELL BAND TERMINATION¹

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High-spin states in the cross-conjugate pairs of nuclei ^{46}Ti - ^{50}Cr and ^{47}V - ^{49}Cr have been investigated using the reaction $^{28}\text{Si} + \text{natSi}$ at a laboratory energy of 125 MeV. Coincidence spectra, in some cases gated by charged particle detection, allow the yrast level schemes of all four nuclei to be extended, up to the $f_{7/2}$ -shell band termination at 14^+ and $31/2^-$ in ^{46}Ti and ^{49}Cr , and beyond to 17^+ and $35/2^-$ in ^{50}Cr and ^{47}V . Opposite-parity bands in ^{46}Ti and ^{47}V were observed up to 11^- and $31/2^+$, respectively. Lifetimes derived from DSAM measurements provide $B(E2)$ and $B(M1)$ values for transitions among the higher levels of each of the nuclei. These are compared with earlier measurements and with $f_{7/2}$ - and fp -shell model calculations. No model calculations have been published for the opposite-parity bands, but their level spacing and reduced transition rates support a spectator nature of the sd hole.

¹Abstract of published paper: Phys. Rev. C **58**, 808 (1998).

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