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Low spin structure of $^{94}_{40}$Zr from (n,n$'\gamma$) measurements[1] E. ELHAMI, J.N. ORCE, S. MUKHOPADHYAY, S.N. CHOUDRY, M. SCHECK, M.T. MCELLISTREM, S.W. YATES, University of Kentucky — Recent measurements of negative g-factors for the 2^+_1 and 4^+_1 states in ^{92}Zr and ^{94}Zr have established the dominant role of $2d_{5/2}$ neutron configurations between the N=50 closed shell and the N=56 subshell closure. Moreover, further studies of mixed-symmety (MS) states in ^{92}Zr supported a weaker p-n interaction for the 2^+_2 MS state, as compared with the 2^+_3 MS state in $^{94}_{42}$Mo, which results in a partial decoupling of proton and neutron excitations. The strong M1 transition with B(M1)=0.37(4) μ^2_N connecting the 2 lowest 2^+ states indicates, however, that both proton and neutron configurations are still important parts of their wavefunctions. Following the previous discussion, we have analysed the low-lying structure of ^{94}Zr at the University of Kentucky. The nuclide was studied through the (n,n$'\gamma$) reaction at energies of 2.3, 2.8 and 3.5 MeV. A 98% enriched ^{94}Zr sample was used and angular distribution information yields to the measurement of branching and mixing ratios of γ-ray transitions, and determination of level lifetimes and transition strengths. For the purpose of this work, only the results for the 2.3 MeV data will be presented.

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