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Evolution of the one-phonon mixed-symmetry state in the N=48isotonic chain¹ LINUS BETTERMANN, Yale University, NORBERT BRAUN, CHRISTOPH FRANSEN, STEFAN HEINZE, JAN JOLIE, ANDREAS LIN-NEMANN, DENNIS MUECHER, RALF SCHULZE, Universitate zu Koeln, DE-SIREE RADECK, Yale University, ULRICH KNEISSL, HEINZ-H. PITZ, MARCUS SCHECK, Universitate Stuttgart — In collective nuclei one can find excitations that are not fully symmetric with respect to the proton-neutron degree of freedom. Those states are called mixed-symmetry states and in vibrator-like nuclei their fundamental one-phonon excitation is the $2_{\rm ms}^+$ state. Near the N = 50 shell closure $2_{\rm ms}^+$ states are well known in the light stable nuclei of the N = 52 isotonic chain, while the data base in the N = 48 chain is sparse. A nuclear resonance fluorescence experiment on ⁸⁴Kr was performed at the University of Stuttgart and $\gamma\gamma$ coincidence measurements after fusion evaporation reactions on ⁹⁰Mo and ⁸⁸Zr at the Cologne Tandem accelerator to investigate the low spin structure and collectivity of these nuclei. We will present results concerning the identification of candidates for the $2^+_{\rm ms}$ state in all three nuclei and discuss these results in the framework of the Interacting Boson Model. Finally we will compare the N = 48 with the N = 52 isotonic chain.

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