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Isospin symmetry breaking in the T = 3/2 mirror pair ⁷³Sr - ⁷³Br¹ AUGUSTO MACCHIAVELLI, Lawrence Berkelev National Laboratory, ALFREDO POVES, Universidad Autonoma de Madrid, 28049 Madrid, Spain, SILVIA LENZI, Universita degli Studi di Padova and INFN, I-35131 Padova, Italy — Recently, Hoff et al. reported the results of a measurement carried out at MSU-NSCL [1], in which the decay of the proton-rich, T = 3/2, $T_z = -3/2$, isotope ⁷³Sr was studied. The experimental data is consistent with a $I^{\pi} = 5/2^{-}$ ground state, which inverts relative to its mirror $T_z=3/2$ partner ⁷³Br which has $I^{\pi}=1/2^{-}$. In this work, we propose an explanation within the framework of the shell model for the nuclear part of the problem, plus a detailed treatment of the Coulomb and other isospin-symmetry breaking effects in line with the findings of Refs. [2,3]. In the present calculation we use the $0f_{7/2}$, $1p_{3/2}$, $0f_{5/2}$, $1p_{1/2}$, $0g_{9/2}$ and $1d_{5/2}$ valence space with the single particle energies taken directly from the experimental spectra of ⁴¹Ca. We show that the large scale shell-model results reproduce well the observed inversion, with the Coulomb interaction playing a dominant role in breaking the isospin symmetry in the 73 Sr - 73 Br mirror pair.

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