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Electromagnetic transition rates in ⁷⁰Ni and ⁷²Ni¹ DAVID MILLER, LUCIA CARTEGNI, ROBERT GRZYWACZ, MUSTAFA RAJABALI, U. of Tennessee, THOMAS BAUGHER, DANIEL BAZIN, HEATHER CRAWFORD, ALEXANDRA GADE, GEOFF GRINYER, HIRONORI IWASAKI, ANDREW RATKIEWICZ, PHILIP VOSS, DIRK WEISSHAAR, NSCL/MSU, KRZYSZTOF STAROSTA, Simon Fraser U., MATHIAS HACKSTEIN, WOLFRAM ROTHER, U. of Cologne — A systematic study of Ni isotopes in the vicinity of doubly-magic 78 Ni will help in the understanding of shell closure effects, isomerism, and single particle states in this region of the nuclear chart. An experiment was performed at National Superconducting Cyclotron Laboratory to measure electromagnetic transition rates in 70 Ni and 72 Ni populated by a one-proton knockout reaction of a Cu beam. The transition rates for the $2^+ \rightarrow 0^+$ and $4^+ \rightarrow 2^+$ transitions were determined using the Recoil Distance Method, particularly suited for picosecond lifetimes, using the Segmented Germanium Array coupled with the NSCL/Köln plunger at the target of the S800 spectrograph. The resulting lifetimes for the low lying transitions suggest a weaker core polarization for nickel isotopes above the N=40 subshell closure than previously suggested.

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