Abstract Submitted for the DNP06 Meeting of The American Physical Society

New precise α_K measurement as part of a test of electronic conversion theory - 166 keV transition in ¹³⁹La CHRISTINE BALONEK, NINEL NICA, JOHN HARDY, Texas A&M University, Cyclotron Institute — Precise internal conversion coefficients (ICCs) are crucial to the study of nuclear decay schemes, including spin and parity designations, transition rates, and branching ratios. However, various calculations of ICCs disagree with one another and with experiment by several percent. The situation is further confused by the fact that very few ICC measurements have uncertainties under 1%. Until recently, it was even unclear if the calculations should incorporate the hole left by the departing conversion electron. To remedy this situation, we have set out to measure the K-shell ICC values of three different isotopes to that precision. The ICCs for 127.55 keV E3 transition of ¹³⁴Cs^m and 661.657 keV M4 transition of ¹³⁷Ba have already been completed. We report here on the third and final case: the 165.858 keV M1 transition in ¹³⁹La.

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Date submitted: 28 Jul 2006

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