

Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Hyperfine quenching of $(3d^9 4s) {}^3D_3$ states in Ni-like ions WALTER JOHNSON, University of Notre Dame, ULYANA SAFRONOVA¹, University of Nevada, Reno — We study quenching of decays from metastable $(3d^9 4s) {}^3D_3$ states of Ni-like ions with odd-A nuclei caused by hyperfine mixing with nearby ${}^1, {}^3D_2$ states. A detailed discussion is given for the Ni-like ions ${}^{132}\text{Xe}$, ${}^{131}\text{Xe}$, and ${}^{129}\text{Xe}$. For ${}^{132}\text{Xe}$ ($I=0$) the 3D_3 state decays by M3 emission. For the odd-A nuclei ${}^{131}\text{Xe}$ ($I=3/2$) and ${}^{129}\text{Xe}$ ($I=1/2$), each hyperfine level decays at a separate rate owing to hyperfine mixing. Comparisons are made with other calculations [1] and with experiment [2] for the the three isotopes of Ni-like Xe. Decay rates of the hyperfine levels of 3D_3 states are evaluated for isotopes of those Ni-like ions in the range ${}^{77}\text{Se}^{8+} - {}^{207}\text{Pb}^{54+}$ that have nuclear spin $I=1/2$ using relativistic many-body perturbation theory. [1] K. Yao, M. Andersson, T. Brage, R. Hutton, P. Jönsson, and Y. Zou, Phys. Rev. Lett. **98**, 269903 (2007). [2] E. Träbert, P. Beiersdorfer, and G. V. Brown, Phys. Rev. Lett. **98**, 263001 (2007).

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Date submitted: 16 Jan 2009

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