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Microwave spectroscopy of high-L Rydberg states of nickel[1]
MARK D. LINDSAY[2], JULIE A. KEELE, SHANNON L. WOODS, STEPHEN R. LUNDEEN, Colorado State University — High-L non-penetrating Rydberg levels of nickel display a fine structure pattern consisting of six levels for each value of L. This pattern was studied recently with the optical RESIS technique, determining initial values of the quadrupole moment and polarizabilities of the $^2D_{5/2}$ ground state of Ni^+ [1]. Measurements are now in progress using the microwave RESIS technique [2], which promises much more precise measurements of the fine structure and of the related core properties, including the permanent hexadecapole moment.

[1] Julie A. Keele, et. al., to be published, Phys. Rev. A
[2] M.E. Hanni, et. al., Phys. Rev. A 78, 062510 (2008)

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