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**The Impact of Non-LTE Multiplet Dynamics on the Modeling of Tungsten Ionization Dynamics**[1] K.G. WHITNEY, Berkeley Scholars Inc., A. DASGUPTA, Plasma Physics Division, NRL, M.C. COULTER, Berkeley Scholars Inc., J. DAVIS, Plasma Physics Division, NRL — Modeling the heating and ionization dynamics of high atomic number plasmas generally requires the use of approximations to the M- and N-shell atomic structure of these plasmas. The average atom model is the most commonly employed such approximation. It effectively assigns to each ionization stage the same atomic structure, thereby ignoring large differences in state structure that exist throughout the different M- and N-shell ionization stages. An alternative approximation is to treat each ionization stage separately, but to lump the states within each nl multiplet[2]. Historically, this approximation has been applied assuming the multiplet substates are in LTE with respect to one another. In this presentation, we calculate the non-LTE behavior of the n=4 states of nickel-like tungsten, whose emissions are seen prominently in exploding wire experiments[3] The non-LTE behavior's effect in modifying the Einstein decay and deexcitation rates of these lumped states will be discussed.

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[2]K. G. Whitney and M. C. Coulter, IEEE Trans. on Plasma Sci., **16, 552 (1988).**
[3]P. G. Burkhalter, et. al., Phys. Rev. A, **15, 700 (1977).**

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