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**Dielectronic satellite spectra of Li-like ions calculated using relativistic many-body theory for spectroscopy of high-$Z$ multiply-charged ion plasmas** U.I. SAFRONOVA, A.S. SAFRONOVA, University of Nevada, Reno, W.R. JOHNSON, University of Notre Dame — The importance of dielectronic satellite spectra of Li-like ions as a plasma diagnostic has been recognized for almost forty years. In particular, dielectronic satellites (DS) created by $1s2lnl'$ autoionizing states in mid-$Z$ ions have been extensively studied both in astrophysical and laboratory plasmas including Tokamak plasmas but not for $Z$ greater than 54. However, high-$Z$ materials such as tungsten will be used in plasma-facing components for future experiments at ITER and thus their spectroscopic data became very important. In this talk, we present relativistic many-body perturbation theory (RMBPT) calculations of dielectronic satellite spectra of Li-like ions and give a detailed discussion of the atomic data (energies, radiative transition rates and autoionization rates) that enter calculations of dielectronic recombination rates for such ions. We discuss these factors in detail for the important case of Li-like tungsten. Also synthetic spectra of dielectronic satellite lines ($1s2l2l' - 1s^2 2l''$) are illustrated for $Mo^{39+}$ and $W^{71+}$ ions which are important for spectroscopy of high-temperature plasmas including tokamak plasmas. This research was sponsored by DOE under the OFES grant DE-FG02-08ER54951 and in part under the NNSA CA DE-FC52- 06NA27588.

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