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LMO dielectronic resonances in highly charged bismuth JOSEPH SMIGA, Univ of Maryland-College Park, JOHN GILLASPY, YURI PODPALY, National Science Foundation, YURI RALCHENKO, National Institute of Standards and Technology — Dielectronic resonances from high-Z elements are important for the analysis of high temperature plasmas. Thus, the extreme ultraviolet spectra of highly charged bismuth were measured using the NIST electron beam ion trap (EBIT) at beam energies ranging from 8.7 keV to 9.2 keV. The measured intensity ratios between forbidden magnetic-dipole lines in Bi^{64+} and Bi^{63+} show strong resonance features. The experimental data were compared to theoretical predictions from a large-scale collisional-radiative model with the code NOMAD, and good agreement was found that allowed the identification of observed resonance features as the LMO inner-shell dielectronic resonances. It is common practice in EBIT experiments that ions are periodically dumped from the trap and replaced. However, in this particular experiment, the contents of the trap were not dumped for the duration of each 10 minute sampling. The effects of trap stability were studied and a small but noticeable shift in beam energy over time was observed. Potential explanations for this are considered.

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