

Abstract Submitted  
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**Signature of chaos in the  $4f$ -core-excited states for highly-charged tungsten ions**<sup>1</sup> ULYANA SAFRONOVA, ALLA SAFRONOVA, University of Nevada-Reno — We evaluate radiative and autoionizing transition rates in highly charged W ions in search for the signature of chaos. In particular, previously published results for Ag-like  $W^{27+}$ , Tm-like  $W^{5+}$ , and Yb-like  $W^{4+}$  ions as well as newly obtained for I-like  $W^{21+}$ , Xe-like  $W^{20+}$ , Cs-like  $W^{19+}$ , and La-like  $W^{17+}$  ions (with ground configuration  $[\text{Kr}]4d^{10}4f^k$  with  $k = 7, 8, 9$ , and 11, respectively) are considered that were calculated using the multiconfiguration relativistic Hebrew University Lawrence Livermore Atomic Code (HULLAC code) and the Hartree-Fock-Relativistic method (COWAN code). The main emphasis was on verification of Gaussian statistics of rates as a function of transition energy. There was no evidence of such statistics for above mentioned previously published results as well as for the transitions between the excited and autoionizing states for newly calculated results. However, we did find the Gaussian profile for the transitions between excited states such as the  $[\text{Kr}]4d^{10}4f^k - [\text{Kr}]4d^{10}4f^{k-1}5d$  transitions, for newly calculated W ions.

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Ulyana Safronova  
University of Nevada-Reno

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