

Abstract Submitted
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Characterizing the perturbed 6snd series of Ytterbium using MW spectroscopy FATHIMA NIYAZ, THOMAS GALLAGHER, University of Virginia
— The Yb 6snd Rydberg series is perturbed weakly by a doubly excited state lying between the 6s26s and 6s27d states. We have used microwave transitions between 6sns-6s(n+1)s and 6sns-6s(n-1)d states to determine the energies of the 6snd Rydberg states of $28 \leq n \leq 40$. We have analyzed the energies of the perturbed series using quantum defect theory, which allows the characterization of the perturbed series by only four parameters. The quantum defect theory model predicts the energies to the accuracy of a few MHz. We have also made lifetime measurements of the 6snd states as a consistency check of our analysis. This work has been supported by the Chemical Sciences Division of the Department of Energy.

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