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Spectral Hole Burning in the Dielectronic Recombination from a Continuum of Finite Bandwidth[1] EDWARD SHUMAN, WEI YANG, TOM GALLAGHER, University of Virginia — The presence of an electric field converts the intermediate autoionizing Rydberg $n\ell$ states, through which dielectronic recombination passes, into nk Stark states, which have autoionization and capture rates in excess of the radiative decay rates and contribute to dielectronic recombination. In zero field the high ℓ states do not contribute to dielectronic recombination, but the conversion to Stark states makes it possible and raises the dielectronic recombination rate. However, an electric field can also result in coupling to loss channels which locally reduce the dielectronic recombination rate. We have observed holes in the spectrum of dielectronic recombination from the Ba $6p_{3/2}8g$ continuum of finite bandwidth via the intermediate $6p_{1/2}ng$ states. The holes appear when an electric field is applied, and we attribute them to interaction with rapidly decaying $6p_{3/2}8\ell$ states, which diverts flux from dielectronic recombination.

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