

Abstract Submitted  
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**Time-Resolved Spectroscopy of Single Excitons Bound to Te Isoelectronic Pairs in ZnSe** ANDREAS MULLER, PABLO BIANUCCI, University of Texas at Austin, CARLO PIERMAROCCHI, Michigan State University, MARCO FORNARI, Central Michigan University, IVAN-CHRISTOPHE ROBIN, REGIS ANDRE, Universite J. Fourier, CHIH-KANG SHIH, University of Texas at Austin — Single Te impurity centers in ZnSe were probed with time-resolved photoluminescence spectroscopy. Resolution-limited peaks with an ultra-low spatial density originate in the recombination of excitons deeply bound to single nearest-neighbor isoelectronic Te pairs. This interpretation is confirmed by ab-initio calculations. The peaks reveal anti-bunched photon emission and a doublet structure polarized along  $[110]$  and  $[\bar{1}10]$ . We analyze the time-resolved PL decay to clarify the role of the dark states in the spin relaxation and radiative recombination of single fine-structure split excitons.

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