

Abstract Submitted  
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**Laser cooling of trapped ytterbium ions with an ultraviolet diode laser**<sup>1</sup> DAVID KIELPINSKI<sup>2</sup>, MARKO CETINA, JONATHAN COX, FRANZ KAERTNER, Massachusetts Institute of Technology — We demonstrate an ultraviolet diode laser system for cooling of trapped ytterbium ions. The laser power and linewidth are comparable to previous systems based on resonant frequency doubling, but the system is simpler, more robust, and less expensive. We use the laser system to cool small numbers of ytterbium ions confined in a linear Paul trap. From the observed spectra, we deduce final temperatures  $< 270$  mK.

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