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**Laser frequency combs for precision astrophysical spectroscopy**

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Precision astrophysical spectroscopy is a crucial tool for cosmology and the search for extrasolar planets, but is currently limited by the stability and precision of existing wavelength calibration sources. I will describe our realization of a near-IR laser comb with up to 40 GHz line-spacing, generated from a 1-GHz repetition-rate source comb and Fabry-Perot filtering cavity; the ongoing integration and testing of this “astro- comb” with a telescope and precision spectrograph at the Whipple Observatory, directed at searches for extrasolar planets; and efforts toward development of astro- combs operating in the visible. Astro-combs should allow more than an order-of- magnitude improvement in sensitivity to changes in Doppler-shifts and cosmological redshifts, with significant impact on many fields.