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**All-Reflective, Achromatic Stationary Fourier-Transform Spectrometer** DAVID WINTERS, PHILIP SCHLUP, RANDY BARTELS, Colorado State University — We present a simplified double-mirror stationary Fourier-Transform spectrometer that measures spectra over a 4.6-octave spectral span between the mid-IR (11 $\mu$m) and the near-UV (400 nm). The results, including octave-spanning spectra, are in good agreement with measurements using conventional grating-based spectrometers. A scanning slit ($\sim$5 $\mu$m in the visible) is used to sample a spatial interferogram formed by overlapping two halves of a spatially-coherent field. An off-axis curved mirror at large incidence angle is used to collect the highly astigmatic beam after the slit and focus it onto a single-element detector, maximizing the system sensitivity and obviating the need for array detectors in the diverse spectral regions. The most common sources of measurement, including errors in collimation, beam pointing, and beam profile, are discussed with reference to their impact on the measured spectra. The calculated deviations are in excellent agreement with measurement results. The spectrometer can be conveniently calibrated using well-characterized sources in the visible, with the calibration remaining unchanged when slit and detector are exchanged for other spectral regions. The spectrometer shows promise for efficient characterization of spectra in the extreme UV.

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