

Abstract Submitted  
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**Electro-optic phase grating streak spectrometer** FLETCHER GOLDIN, National Security Technologies, LLC — The Electro-optic phase grating streak spectrometer (EOPGSS) generates a time-resolved spectra equivalent to that obtained with a conventional spectrometer/streak camera combination, but without using a streak camera (by far the more expensive and problematic component of the conventional system). The EOPGSS is based on a phase, rather than an amplitude grating. Further, this grating is fabricated of electro-optic material such as, for example, KD\*P, by either etching grooves into an E-O slab, or by depositing lines of the E-O material onto an optical flat. An electric field normal to the grating alters the material's index of refraction and thus affects a shift (in angle) of the output spectrum. Ramping the voltage streaks the spectrum correspondingly. The streak and dispersion directions are the same, so a second (static, conventional) grating disperses the spectrum in the orthogonal direction to prevent different wavelengths from “overwriting” each other. Since the streaking is done by the grating, the streaked output spectrum is recorded with a time-integrating device, such as a CCD. System model, typical design, and performance expectations will be presented.

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