

Abstract Submitted
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Fluorescence OPA FROG of NIR Dyes COLLEEN WOODWARD,
NANCY LEVINGER, Colorado State University — In standard applications, optical parametric amplification (OPA) is accomplished using a white light continuum as the seed. This presentation will describe a design for an ultrafast fluorescence-OPA-FROG (Frequency Resolved Optical Gating) experiment and its utility for measuring fluorescence dynamics on an ultrashort timescale. This technique has several attractive features compared to current state-of-the-art fluorescence upconversion because it has the potential to amplify weak fluorescence, detection occurs at the wavelength of the fluorescence signal in the visible or near IR spectral region, and the phase-matching condition is $\vec{k}_{pump} = \vec{k}_{signal} + \vec{k}_{idler}$. We will demonstrate time gating and effective amplification of the fluorescence of common near infrared dyes, IR 125, IR 132, and IR 140 in DMSO.

Colleen Woodward
Colorado State University

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