

# Physics Department Seminar

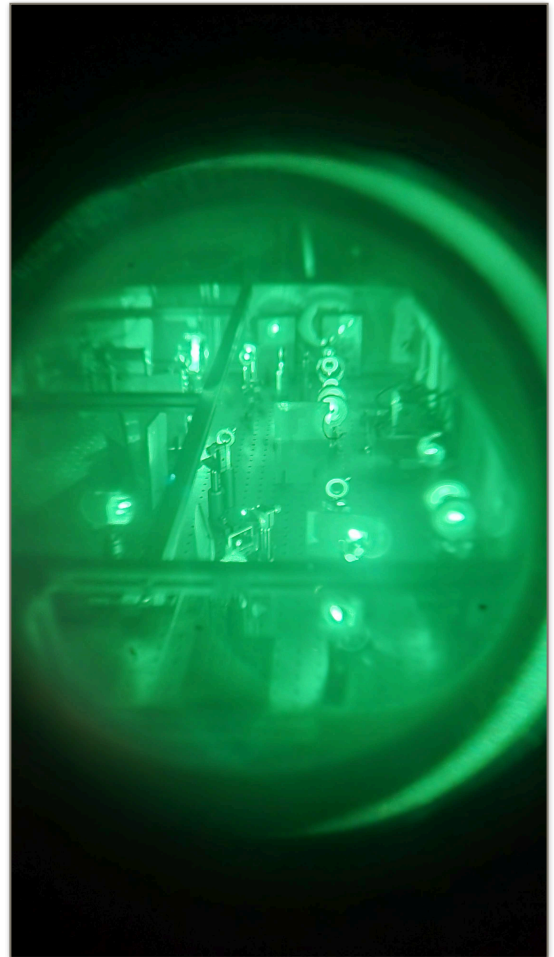
May 9, Friday at 2 PM in Science Building Room 250

## Characterizing through-focus pulse-front tilt

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Studying ultrafast processes requires laser light at specific wavelengths, which femtosecond lasers don't always produce. However, the wavelength can be tuned by passing the laser pulses through a nonlinear crystal—a process known as Nonlinear Optical Parametric Amplification (NOPA).

To achieve NOPA, the pulses must overlap in the nonlinear crystal in space and in time. This task is challenging due to a spatial and temporal distortion of ultrafast laser pulses known as pulse-front tilt. Pulse-front tilt has been measured for collimated beams but not at and near the focus (a region known as through-focus). To characterize the pulse-front tilt in the through-focus region, a modified Second Harmonic Generation (SHG) Frequency Resolved Optical Gating (FROG)



technique was used. This work was done as a proof-of-concept, and revealed that the employed modified SHG FROG is not viable for characterizing through-focus PFT.