

# Using emission spectroscopy to understand laser generated plasma filaments

High power lasers can show non-linear optical effects that lead to the self-focusing of laser beams, producing thin channels of plasmas along the laser propagation path which are referred to as laser filaments. Scientists believe that understanding the dynamics and processes in these filaments could build the basis for applications in power transmission, as plasma antennas or long-range sensing.

Researchers around Ruxin Li from the State Key Laboratory of High Field Laser Physics are investigating the interaction of laser filaments with strong electric fields and optical spectroscopy. This plays an important role by measuring the fluorescence of Nitrogen in the laser plasmas. A pair of imaging lenses are used to guide the emitted radiation into the entrance slit of a SP2560 spectrograph, providing high resolution to observe the spectral features of the plasma ions.

**Featured Paper/Publication:** [Femtosecond laser filament guided negative coronas](#), AIP Advances (2020)

**Reference Lab:** Ruxin Li, Shanghai, China

**Featured Product:** [SpectraPro HRS](#), [PIXIS](#)