

Title: CARS in Explosives and Pyrotechnics

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Abstract: Explosive and pyrotechnic environments are extremely difficult for laser diagnostic measurements due to the extreme temperatures, pressures, and dynamics. In this poster ultrashort-pulse CARS thermometry measurements will be presented for two challenging environments. First, a laboratory-scale RDX detonation fireball was studied using one-dimensional rotational CARS for nitrogen-based thermometry. Second, an atmospheric-pressure metalized solid rocket propellant flame was studied using vibrational hydrogen CARS to perform point thermometry at 1 kHz. SNL is managed and operated by NTESS under DOE NNSA contract DE-NA0003525.