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Photoactive energetic materials: linear and nonlinear photochemistry of chromophore linked energetic materials MARGO GREENFIELD, SHAWN MCGRANE, CINDY BOLME, DAVID CHAVEZ, JACQUELINE VEAUTHIER, SUSAN HANSON, THOMAS MYERS, JASON SCHARFF, Los Alamos National Laboratory — In general, conventional molecular explosives are white to off-white in color and only absorb ultraviolet light. A novel approach to synthetically link optically active energetic chromophores to existing molecular energetic materials has resulted in increased photoactivity in the visible (532 nm) region of the electromagnetic spectrum. Tetrazine, an energetic optically active chromophore, which absorbs around 532 nm, has been derivatized with various energetic materials including pentaerythritol tetranitrate (PETN), nitroglycerine (NG) and dinitroazetidine (DNAZ). We report the corresponding photochemistry and photochemical quantum yields of these new materials under various wavelength and intensity regimes.

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