

Abstract Submitted
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Broadband generation produced in Raman-active crystals by two- and three-color femtosecond laser pulses MIAOCHAN ZHI, DMITRY PESTOV, XI WANG, ROBERT MURAWSKI, ALEXEI SOKOLOV, Texas A&M University — We observe broadband generation by non-collinearly focusing two- or three-color ultrashort laser pulses into Raman-active crystals. The generated spectrum extends from infrared to ultraviolet, and consists of discrete spatially-separated Raman sidebands. Up to 20 sidebands are observed when two-color fs-laser pulses interact with PbWO₄ crystal. Similar generation is observed in diamond. By applying the third probe beam, about 50 sidebands are generated through the Raman-resonant four wave mixing. By looking at the coherent Stokes and anti-Stokes signal with delayed probe pulse, we can see that multiple Raman levels are excited by the short (50 fs) pulses used. Combining the multiple generated sidebands may prove to be a way to synthesize subfemtosecond pulses.

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