

upconversion

The process by which two photons with frequencies ν_2 and ν_3 combine in a non-linear medium to produce a higher energy photon with frequency ν_1 such that $\nu_1 = \nu_2 + \nu_3$

Notes:

1. Also known as a parametric upconversion or sum frequency generation. Upconversion is the reverse process of downconversion.
2. The efficiency of the conversion process depends on the parametric gain in the non-linear material. This in turn depends on the power of the incident radiation, the photon frequencies, their indices of refraction in the material, and the non-linear 'hyper-susceptibility' of the material.

Source:

PAC, 2007, 79, 293 (*Glossary of terms used in photochemistry, 3rd edition (IUPAC Recommendations 2006)*) on page 437