

# NEW APPLICATIONS OF UPCONVERSION VIA EXPLORATION OF NOVEL ANNIHILATORS

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Upconversion that proceeds via triplet fusion (TF), also known as triplet-triplet annihilation (TTA), has received widespread attention for its potential applications ranging from enhancing photovoltaic efficiency, to anti-counterfeiting, to improved 3D printing. In contrast to other mechanisms, TF upconversion is highly efficient even at sub-solar incident flux.

TF upconversion requires two species, a sensitizer which absorbs low energy photons, and an annihilator which emits high energy photons. Despite the breadth of potential applications of TF upconversion, very few annihilators have been studied.

Herein, I will discuss our work in developing new annihilators for TF upconversion. By focusing on annihilators that are synthesized via common wet chemical synthesis, we can develop libraries of molecules that are easily derivatized. This allows the development of structure-function relationships, to synthesize optimized annihilators for any desired application.

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