Showcasing research from Professor Kasper Moth-Poulsen's laboratory, School of Chemical Engineering, Polytechnic University of Catalunya, Barcelona, Spain.

Enhancing the statistical probability factor in triplet–triplet annihilation photon upconversion *via* TIPS functionalization

This work shows the influence of triisopropylsilyl functionalization on annihilators in triplet–triplet annihilation photon upconversion, specifically focusing on their spin statistical probability factor (*f*). The f determines the probability of singlet generation after triplet coupling. A new green-emitting annihilator 3,9-bis((triisopropylsilyl) ethynyl)perylene (**TIPS-PY**) was synthesized, which shows a high red-to-green TTA-UC quantum yield, Φ_{UC} = 13.7% due to high *f* = 39.25%). Computation analysis revealed that high *f* of **TIPS-PY**, resulted from enhanced coupling of the triplet-pair state with the singlet state due to high singlet character of the triplet state.

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See Pankaj Bharmoria, Kasper Moth-Poulsen *et al., Chem. Sci.,* 2025, **16**, 20255.

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