

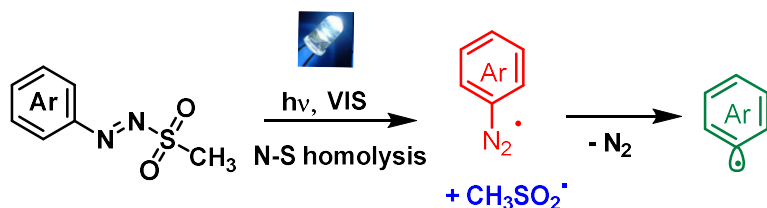
Photogenerated intermediates in organic synthesis. Leave a light on

Stefano Protti

PhotoGreen Lab, Department of Chemistry, University of Pavia,

Viale Taramelli 12, 27100 Pavia, Italy, stefano.protti@unipv.it

In recent decades, a remarkable variety of strategies have been developed to harness the traceless nature of visible photons in organic synthesis. These include, among others, photocatalysis, photoredox catalysis, and the formation of electron donor–acceptor (EDA) complexes. Central to these approaches is the use of colored and photoreactive organic compounds, which are key to effectively utilizing visible photons as ideal reagents in synthetic methodologies.¹



In this context, our group outlined the concept of *dyedauxiliary group*, a moiety that is able to impart both color and photoreactivity when incorporated into a colorless organic molecule. One of the most recent examples is represented by the -N₂SO₂R substituent in (hetero)aryldiazene sulfones.² Such shelf stable and colored derivatives can be smoothly synthesized from the corresponding anilines in a two step procedure, and upon direct visible light irradiation, can release three distinct intermediates, namely sulfonyl (RSO₂•), aryldiazenyl radical (Ar-N₂•), and (after nitrogen loss) aryl radicals. The multifaceted application of arylazo sulfones in organic synthesis have been pointed out by the wide range of synthetic protocols developed in the last ten years, for the formation of C-C and C-heteroatom bonds under (photo)catalyst free conditions.³ Furthermore, arylazo sulfones found application has non ionic PhotoAcid Generators⁴ in organic synthesis as well as photochemical precursors of Hydrogen Atom Transfer (HAT) agents.⁵

References.

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