

Molecular Nanographenes for Organic Electronics

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Nanographenes (NGs) have usually been synthesized following a top-down approach by “cutting” a graphene sheet into smaller fragments using chemical or physical methods. Alternatively, NGs are also prepared from smaller chemical entities using solution-phase benchtop organic synthesis, leading to monodisperse molecules with a precise control on the size and shape, exhibiting fine-tuned optoelectronic properties.

Along the last recent years, many molecular NGs have been synthesized by design in the search for precise and specific properties. An example of this control is the introduction of out-of-plane defects at will, namely curvature, helicity, or strain, resulting in the presence of chirality as an additional and remarkable structural control.¹

In our laboratory, we have carried out the synthesis and unveiled the properties of a variety of molecular nanographenes in the search for new chiroptical and optoelectronic properties in all-carbon materials.²⁻⁷ In this presentation some recent and amazing NGs stemming from our research group will be presented and discussed.⁸⁻¹⁰

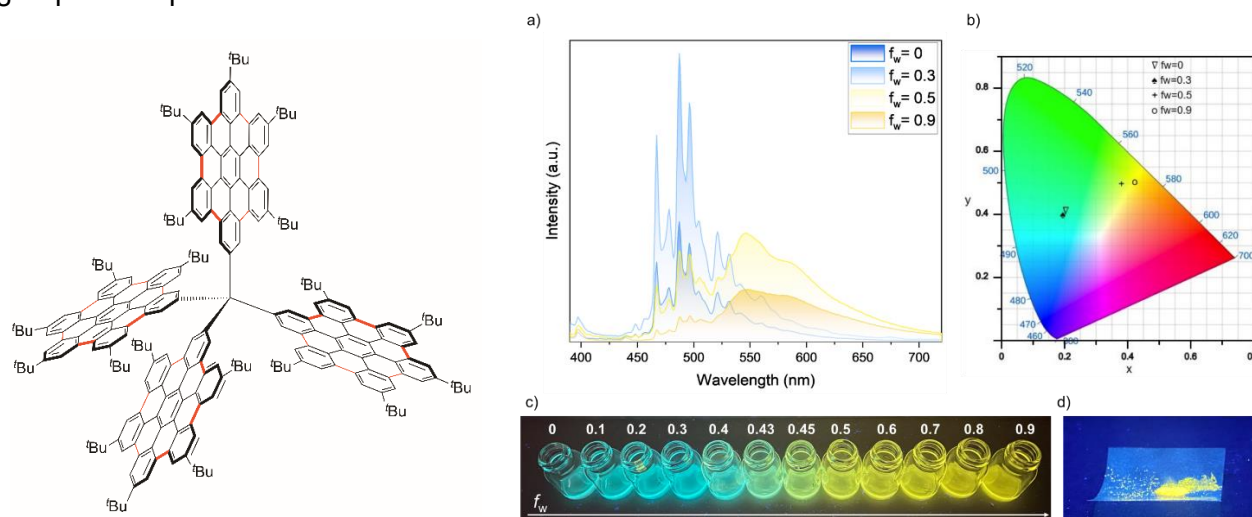


Figure 1. Tetrahedraphene, a molecular nanographene exhibiting AIE

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