



Showcasing research from Professor Mark G. Humphrey's laboratory, Research School of Chemistry, Australian National University, ACT, Australia.

Exceptional three- to six-photon absorption at organometallic dendrimers

There are few efficient instantaneous  $n$ -photon absorbers ( $n > 2$ ), a key reason being the scarcity of structure-property studies. This paper reports systematically-varied metallodendrimers up to third-generation, together with their nonlinear absorptive responses over the range 600–2520 nm. The dendrimers exhibit exceptional instantaneous three- to six-photon absorption cross-sections, with maximal values increasing with generation and installation of solubilizing group. Changes in peripheral groups shift the  $n$ PA maxima wavelengths. Time-dependent DFT studies have facilitated assignment of the key linear and nonlinear transitions and disclosed the crucial role of the metal in the outstanding MPA performance.

As featured in:



See Mark G. Humphrey *et al.*,  
*Chem. Sci.*, 2024, **15**, 8731.