

## NEW FLUORENE-BASED FLUORESCENT PROBE WITH EFFICIENT TWO-PHOTON ABSORPTION

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### S u m m a r y

The synthesis, linear photophysical characterization, and two-photon absorption (2PA) properties of new fluorene derivative 3,3'-(pyridine-2,6-diyl)bis(1-(7-(diphenylamino)-9,9-dihexyl-9H-fluoren-2-yl)propane-1,3-dione) (**1**) have been presented. The steady-state absorption, fluorescence and excitation anisotropy spectra along with the fluorescence decay kinetics of **1** are obtained in the solvents of different polarities at room temperature with respect to its potential application in bioimaging. The analysis of linear photophysical properties revealed a complicated nature of the main one-photon absorption band of **1**, and the strong solvatochromic effect in steady-state fluorescence spectra is observed. The degenerate 2PA spectrum of **1** is measured in the spectral range 570–970 nm with the use of the open aperture Z-scan method under the 1-kHz femtosecond excitation, and the maximum values of two-photon action cross sections  $\sim(100\text{--}130)$  GM are obtained. The nature of the linear absorption and the 2PA bands is analyzed by quantum chemical methods using a Gaussian program package.