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Optical limiting properties and time-resolved photoluminescence study on a series compounds based on 1,3,5-triazine: From linear to tri-branched and six-branched structural configurations

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Abstract:

Z-scan and time-resolved photoluminescence experiments were performed to study the optical limiting properties and the excited state dynamics of a series compounds based on 1,3,5-triazine. The optical limiting properties were greatly enhanced when multi-branched structural configurations were built. The more branches the better optical limiting properties. The fluorescence quantum yields of multi-branched compounds were decreased with the number of the branches. Obvious different excited states responses were determined by time-resolved photoluminescence. The fluorescence lifetimes were determined to be ~ 2.9 ns, ~ 2.3 ns, and ~ 0.5 ns, for compounds with linear, tri-branched, and six-branched structural configurations, respectively. The obtained ultrafast dynamics properties are well accorded with the fluorescence quantum yield results.

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