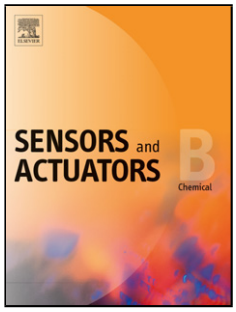

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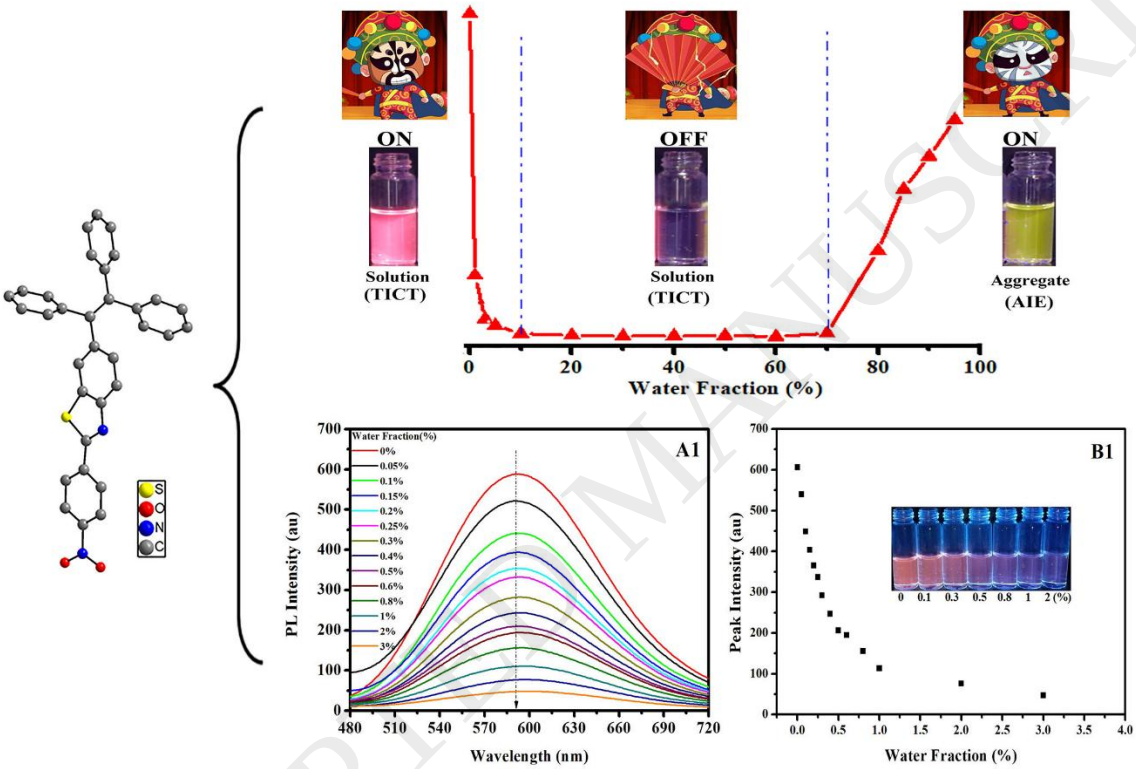
A new AIE and TICT-active tetraphenylethene-based thiazole compound: synthesis, structure, photophysical properties and application for water detection in organic solvents

Hao Sun[1], Xin-Xue Tang[1], Bao-Xi Miao[1], Yun Yang[2], Zhonghai Ni[1]*

[1]School of Chemical Engineering and Technology, China University of Mining and Technology, Xuzhou221116, People's Republic of China;

[2]Nanomaterials and Chemistry Key Laboratory, Wenzhou University, Wenzhou 325027, China

Graphical Abstract



Highlights

- • A new AIE and TICT-active TPE-based thiazole probe $TBTNO_2$ was synthesized and characterized.
- $TBTNO_2$ exhibits extraordinary "on–off–on" optical switching property accompanied by significant emission changes.
- $TBTNO_2$ can be employed to detect water in organic solvents quantitatively and roughly.
- $TBTNO_2$ can serve as a sensitive indicator to monitor trace water content in the drying process of organic solvents approximately.

Corresponding author E-mail: nizhonghai@cumt.edu.cn (Z. H. Ni)

Abstract

A new thiazole derivative 2-(4-nitrophenyl)-6-(1,2,2-triphenylvinyl)benzo[d]thiazole (**$TBTNO_2$**) based on tetraphenylethene (TPE) was designed and synthesized. The structure has been fully characterized by NMR, MS,