Organic boron compounds as novel fluorescent probes

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Organic boron compounds with electronic donor and/or acceptor group show sensitive fluorescence with their environment. For the triaryl boron compounds, they give fluorescent emission of typical intramolecular charge transfer (ICT) compounds due to the electron affinity of the boron atom. These compounds have two emissive excited states and the energy difference between them is small, so that a significant temperature effect is observed. Meanwhile, they have a relatively high fluorescence quantum yield due to the small size of the boron atom and its crowed aryl surroundings. For their good stability and unique luminescent properties, triaryl boron compounds are studied as novel luminescent probes for the detection of temperature, pH value and as a special component in solutions and in bio-cells.

**References**

(1) Dehui Hu, Tao Zhang, Shayu Li, Tianjun Yu, Xiaohui Zhang, Rui Hu, Jiao Feng, Shuangqing Wang, Tongling Liang, Jianming Chen, Lyubov N. Sobenina, Boris A. Trofimov, Yi Li, Jinshi Ma, and Guoqiang Yang, *Nature Comm.* **2018**, *9:* 362，DOI: 10.1038/s41467-017-02270-0

(2) [Jun Liu](http://pubs.rsc.org/en/results?searchtext=Author%3AJun%20Liu), [Shilu Zhang](http://pubs.rsc.org/en/results?searchtext=Author%3AShilu%20Zhang), [Chenghua Zhang](http://pubs.rsc.org/en/results?searchtext=Author%3AChenghua%20Zhang), [Jun Dong](http://pubs.rsc.org/en/results?searchtext=Author%3AJun%20Dong), [Chengyi Shen](http://pubs.rsc.org/en/results?searchtext=Author%3AChengyi%20Shen), [Jiang Zhu](http://pubs.rsc.org/en/results?searchtext=Author%3AJiang%20Zhu), [Huajun Xu](http://pubs.rsc.org/en/results?searchtext=Author%3AHuajun%20Xu), [Mingkai Fu](http://pubs.rsc.org/en/results?searchtext=Author%3AMingkai%20Fu), [Guoqiang Yang](http://pubs.rsc.org/en/results?searchtext=Author%3AGuoqiang%20Yang), [Xiaoming Zhang](http://pubs.rsc.org/en/results?searchtext=Author%3AXiaoming%20Zhang). *Chem. Commun.*, **2017,** *53,* 11476-11479.

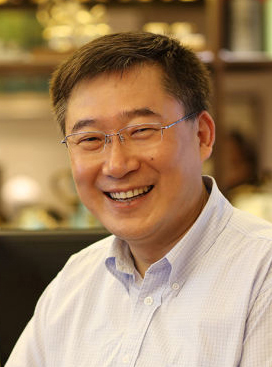
(3) Jun Liu, Xudong Guo, Rui Hu, Jian Xu, Shuangqing Wang, Shayu Li, Yi Li, and Guoqiang Yang, *Anal. Chem.* 2015, *87,* 3694−3698.

(4) Xuan Liu, Shayu Li, Jiao Feng, Yi Li and Guoqiang Yang，2014, *Chem. Comm.*, *50 (21),* 2778 – 2780

(5) Xiaoyan Li, Xudong Guo, Lixia Cao, Zhiqing Xun, Shuangqing Wang, Shayu Li, Yi Li, and Guoqiang Yang, *Angew. Chem. Int. Ed.,* 2014, *53 (30),* 7809-7813.

**Biography**

Guoqiang Yang (born in 1963) received a BS degree (1985) in chemistry from Peking University and a PhD degree (1991) from the Institute of Photographic Chemistry, Chinese Academy of Sciences.



 He worked at the Institute of Photographic Chemistry as an Assistant (1991) and Associate Professor (1993), in the Kyoto University of Japan (1992-1993, with Professor T. Shimizu) as a Post-doc researcher of Japan Society for the Promotion of Science, in the Ecole Nationale Superieure de Chimie de Mulhouse, Universite de Haute-Alsace, France as a Visiting Professor (1995, 2001, 2003), and at the University of Illinois at Urbana-Champaign as a research associate (1996-1999, with Professor H. G. Drickamer).

Since 1999 he has been working at the Institute of Chemistry, Chinese Academy of Sciences as a full professor, and has served as the Deputy Director of the institute, Director of the Key Laboratory of Photochemistry.

He is currently the Vice President of the University of Chinese Academy of Sciences and Vice President of Chinese Photochemistry Association. He is one of the Councilors of the Asian and Oceanian Photochemistry Association, Assistant Editor for the Journal of Photochemistry and Photobiology A: Chemistry and a member of the editorial committee of the Journal of Photochemistry and Photobiology C: Review.

  His research interests include photo-functional materials, electronic structure of the luminescent materials, novel fluorescent probes and effect factors on the luminescent properties of the material. He has published 221 research papers and has authorized 25 patents.