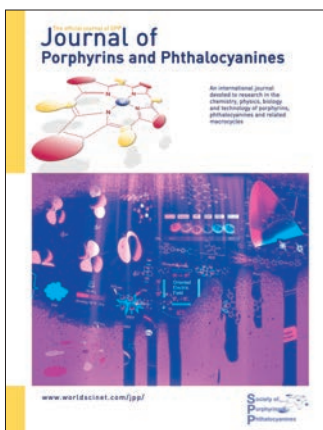


About the Cover



The cover shows a montage of the science presented in the current issue.

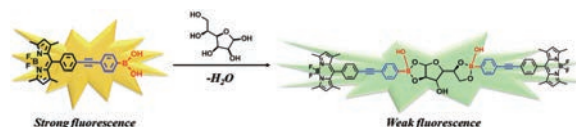
Articles

pp. 135–142

Optical sensor properties of a novel BODIPY compound for non-enzymatic detection of glucose

Selma K. Yıldırım, İpek Ömeroğlu and Mahmut Durmuş*

This work demonstrates the preparation and characterization of a novel BODIPY derivative containing boronic acid group and the investigation of its non-invasive/non-enzymatic fluorescence sensor behavior for the determination of glucose.

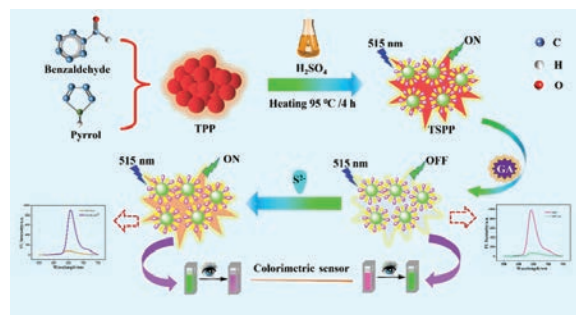


pp. 143–150

An “on-off-on” fluorescent sensor based on TSPP-gallic acid: Visual detection of S²⁻ in actual samples

Yuanyuan Liu, Tianfeng Ma, Jing Li, Lin Shi, Xiaohua Xu and Huan Wang*

5,10,15,20-(4-Sulphonatophenyl) porphyrin (TSPP) was used as a fluorescence probe for an “on-off-on” switch fluorescence sensor system. At first, the red TSPP solution emits red fluorescence and the fluorescence signal is “turned on”. When gallic acid (GA) is introduced, the solution turns green and the fluorescence signal is “turned off”. When S²⁻ continues to be introduced, the solution reverts to red and the fluorescence signal is “turned on” again. The constructed sensing system is used to detect S²⁻ in actual samples.



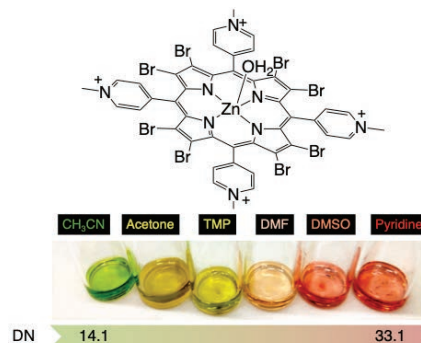
Articles

pp. 151–156

Solvatochromism of a saddle-distorted cationic Zn(II)-porphyrin complex

Hidemi Ochiai, Tomoya Ishizuka, Hiro Tanaka, Yoshihito Shiota, Kazunari Yoshizawa and Takahiko Kojima*

A saddle-distorted and cationic Zn(II) porphyrin complex was shown to exhibit solvatochromism in organic solvents, depending on the solvent donor number. The color change is derived from alteration of the HOMO-LUMO gap caused by distortion of the porphyrin mean plane due to solvent coordination.

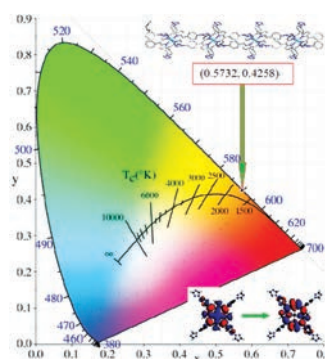


pp. 157–165

A novel 5,10,15,20-tetrakis-(4-(triazol-1-yl)phenyl)-porphyridine compound: Crystal structure, photophysical properties and TDDFT calculations

Hao-Dong Liu, Xi-Yu Shao, Long-Hua Zeng, Yu-Yue Xu, Cheng Liu*, Sheng-Ping Dai, Chang-Wang Pan and Wen-Tong Chen*

A novel porphyridine is reported. This compound in ethanol solution shows upconversion red photoluminescence. TDDFT calculations verify that photoluminescence results from the MLCT process. The Correlated Color Temperature (CCT) is 1858 K and the Commission Internationale de l'Éclairage (CIE) chromaticity coordinate is (0.5732, 0.4258). Solid-state UV-visible diffuse reflectance measurements reveal that this compound has a 2.75 eV band gap.

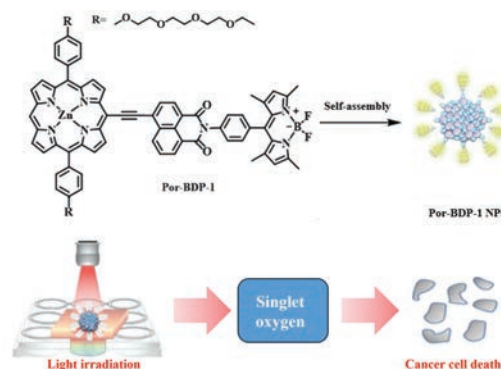


pp. 166–172

Novel naphthalimide bridged zinc porphyrin/BODIPY nanomaterials with D-A structure for photodynamic therapy

Min Cui, Sijie Zhu, Mengmeng Xiong, Huijie Zuo, Xiang Li*, Kai Wang* and Jun Jiang*

A novel naphthalimide bridged zinc porphyrin/BODIPY molecule (Por-BDP-1) with two poly(ethylene glycol) (PEG) chains was prepared, in which there was a donor-acceptor structure between the naphthalimide group and the porphyrin group. After self-assembly into nanoparticles, Por-BDP-1 NPs effectively killed HeLa cells and showed lower dark toxicity. All of the results demonstrated that the naphthalimide bridged zinc porphyrin/BODIPY nano-photosensitizer is a promising nanoagent for PDT.



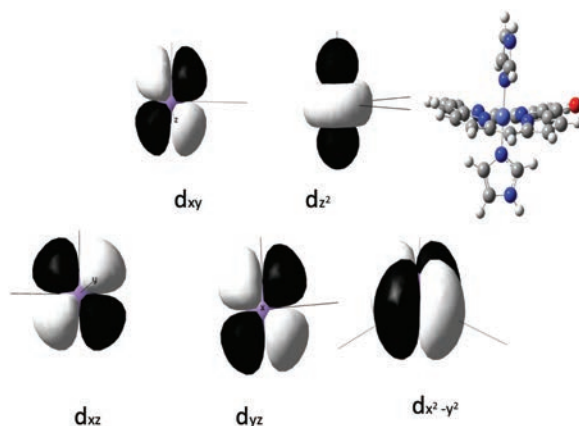
Articles

pp. 173–191

Study of six coordinated cobalt(III) oxophlorin with different axial ligands: Optimization of geometry and determining of energy and electronic configuration at various spin states by employing B3LYP, BV86P and M06-2X methods

Homayoon Bahrami*, Narges Ostadhosseini,
Hamid Reza Shamlouei and Mansour Zahedi

A theoretical investigation of the geometry and electronic configuration of six-coordinate Co(III) oxophlorins (PO) with different axial ligands and various multiplicity spin states using the B3LYP method indicate that the oxophlorins in a singlet spin state are more stable than those in the other spin states. Based on crystal field theory and molecular orbital theory, the electron configuration and the hybridization of the cobalt ion of $[(Im)_2Co^{III}(PO)]$ in a singlet state can be written as $t_{2g}^6 e_g^0$ and sp^3d^2 , respectively. The first electronic configuration indicates a strong field with low spin for d orbitals of cobalt, and the second hybridization for a metal with a coordination number of 6 in a complex with O_h symmetry.



pp. 192–199

The behavior of low-symmetry penta(chloro)cyclotriphosphazene-substituted mono-phthalocyanines in the oriented external electric fields

Alexander Yu. Tolbin

Oriented external electric fields cause modulation of structural changes and electronic properties of low-symmetry mono-phthalocyanines. This is critical to enhance their reactivity and nonlinear optical response. This work demonstrates the possibility of easy elimination under strong electric fields, leaving substituents behind, which opens up new horizons for studying chemical reactions. The proposed approach also allows one to establish the root cause of the optical signal conversion.

