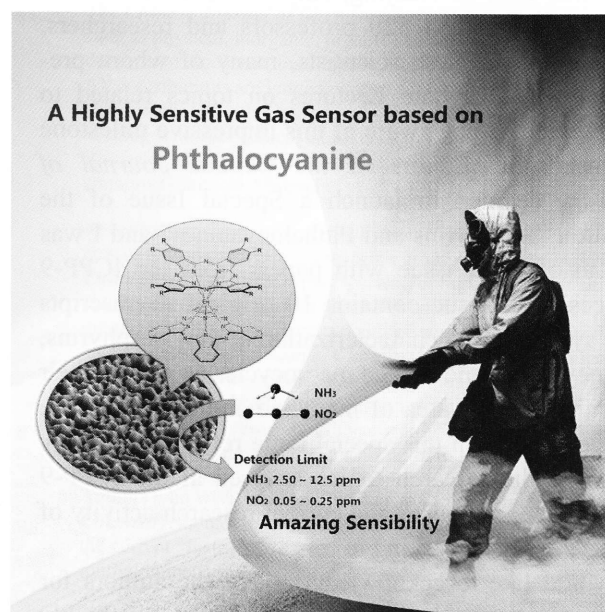


中国科学院科学出版基金资助出版

COVER PICTURE

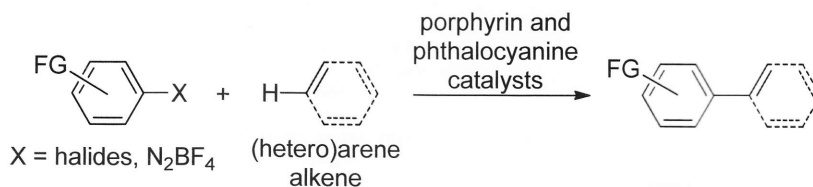
The cover picture shows an excellent ambipolar chemical sensor towards NO_2 and NH_3 based on the self-assembled nanostructures of a heteroleptic bis(phthalocyaninato) europium semiconductor $\text{Eu}(\text{Pc})[\text{Pc}(\text{ONh})_8]$ (**1**). Depending on the effective intermolecular interaction between double-decker molecule, the optimized molecular packing and the uniform-sized nanoparticles formed in the self-assemblies of **1**, which insure the good conductivity, high crystallinity and large specific surface area and thus sensitive to either electron-accepting gas NO_2 in 50–250 ppb range or electron-donating gas NH_3 in 2.5–12.5 ppm range. The present work is among the best results of phthalocyanine-based chemical sensors for detection of NO_2 and NH_3 at room temperature. Interestingly, the devices exhibited *n*-type response to NO_2 and *p*-type response to NH_3 , which is the first example of ambipolar charge-transporting gas sensors fabricated from single-component organic semiconductors. More details are discussed in the article by Chen and Jiang *et al.* on page 975–982.



REVIEW

955

Porphyrins and Phthalocyanines Catalyzed Direct C–H Arylation



Ching Tat To, Wu Yang, Kin Shing Chan*

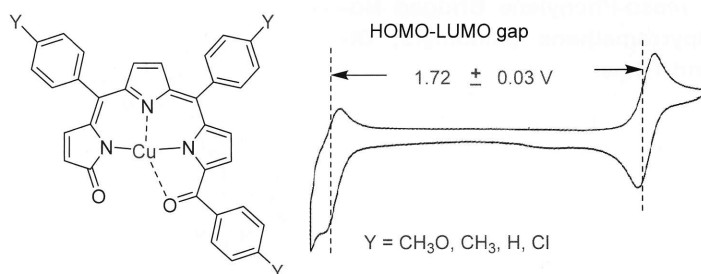
This review summarizes the catalytic direct C–H arylation reactions catalyzed by metalloporphyrins, free base porphyrins and free base phthalocyanines.

FULL PAPERS

962

Synthesis and Electrochemistry of Aryl-Substituted Tripyrrinone Copper Complexes. Comparison of Redox Properties to Structurally Related Porphyrins and Corroles

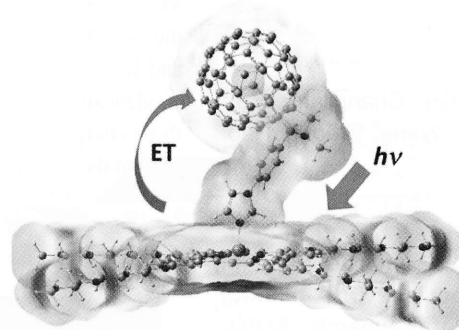
Wenda Wang, Zhongping Ou,* Lina Ye, Yuanyuan Fang, Songlin Xue, Yang Song, Karl M. Kadish*

Four *meso*-aryl substituted tripyrrinone copper(II) complexes were synthesized and characterized as to their electrochemical and spectroelectrochemical properties.

969

Singlet Oxygen Generation and Photoinduced Charge Separation of Tetra Polyethyleneglycol Functionalized Zinc Phthalocyanine-Fullerene Dyad

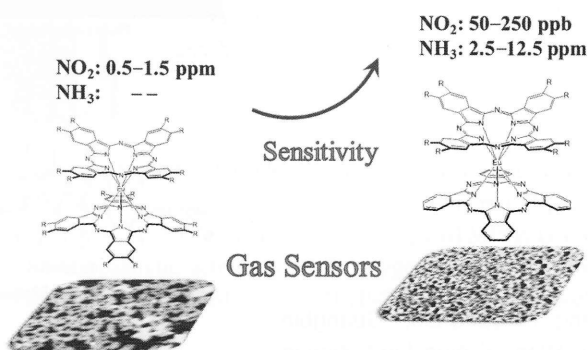
Habtom B. Gobeze, Ta Tram, Chandra B. KC, Robert R. Cantu, Paul A. Karr, Francis D'Souza*



975

High Sensitive Ambipolar Response towards Oxidizing NO₂ and Reducing NH₃ Based on Bis(phthalocyaninato) Europium Semiconductors

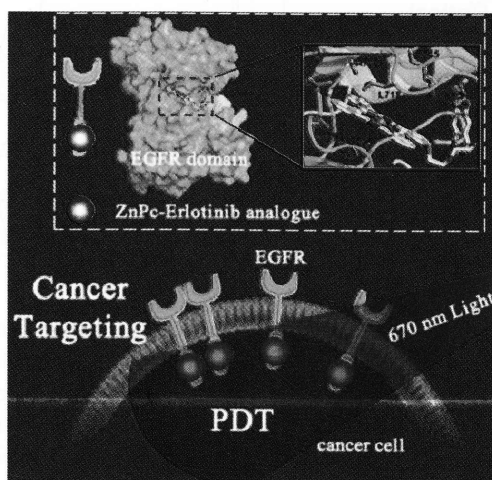
Xia Kong, Zhen Dong, Yanling Wu, Xiyou Li, Yanli Chen,* Jianzhuang Jiang*

High sensitive chemical sensors towards oxidizing NO₂ and reducing NH₃ are achieved based on the self-assembled nanostructures of Eu(Pc)[Pc(OH)₈] and Eu[Pc(OH)₈]₂.

983

Erlotinib Analogue-substituted Zinc(II) Phthalocyanines for Small Molecular Target-based Photodynamic Cancer Therapy

Juanjuan Chen, Huannian Ye, Mingjun Zhang, Jinyu Li, Jianyong Liu,* Jinping Xue*

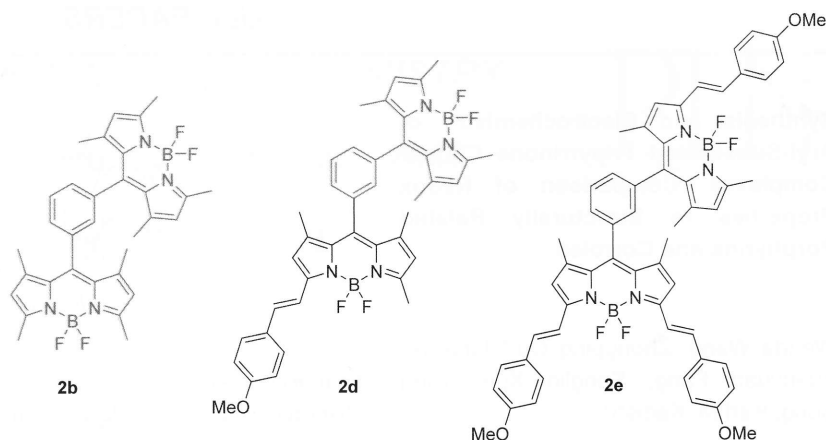


Small molecular target-based anticancer drug, which has a simple chemical structure and high stability, is an ideal targeted group for conjugating with photosensitizers to improve PS selectivity. We have developed this “smart” targeted therapeutic strategy and synthesized a series of promising anticancer agents with high tumor selectivity and anticancer activity for photodynamic therapy.

CONTENT

989

Syntheses and Photophysical Properties of *meso*-Phenylene Bridged Boron Dipyrromethene Monomers, Dimers and Trimer

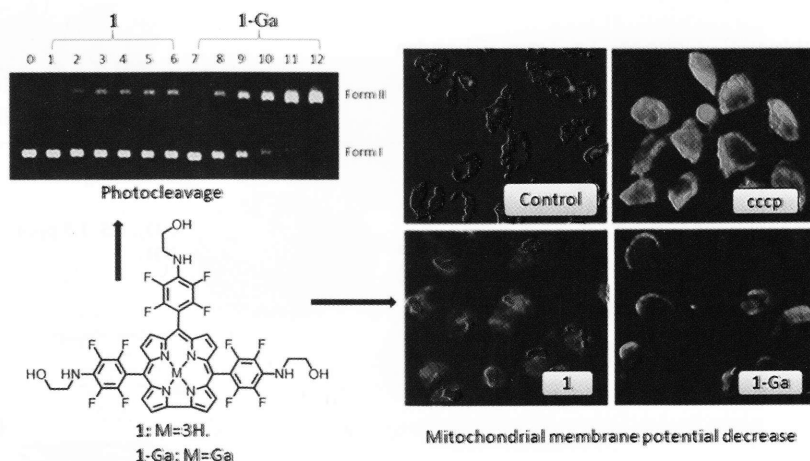


Tingting Li, Wei Gu, Changjiang Yu,* Xiaokang Lv, Hua Wang, Erhong Hao, Lijuan Jiao*

Multichromophoric boron dipyrromethene (BODIPY) dyes have been efficiently synthesized from a one-pot condensation between acyl chloride and 2,4-dimethylpyrrole and have been converted to energy transfer cassettes through a one-pot Knoevenagel condensation. Efficient energy transfer between the donor and acceptor was observed in these energy transfer cassettes, which could be useful as large pseudo-Stokes shift fluorescent dyes with potential applications in diverse fields.

997

Polyhydric Corrole and Its Gallium Complex: Synthesis, DNA-binding Properties and Photodynamic Activities

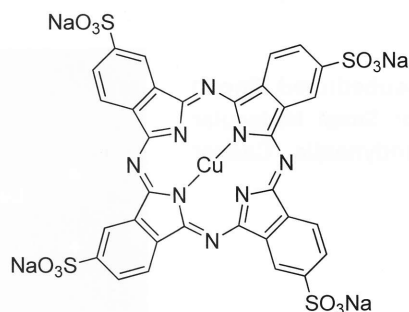


Zhenhua Liang, Haiyang Liu,* Guangbin Jiang, Jinyan Wen, Yunjun Liu,* Xinyan Xiao*

Corrole **1** and its gallium complex **1-Ga** interacted with DNA externally and exhibited the potential as photosensitizers in PDT.

1006

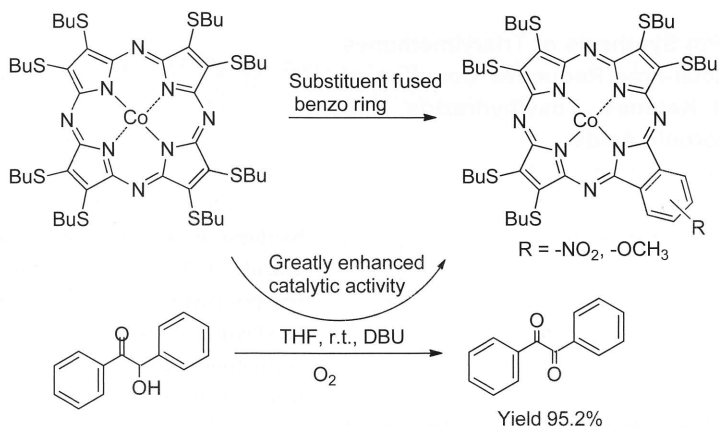
Dynamic Study of Nonlinear Optical Properties in Tetrasodium Salt of Copper Tetrasulfophthalocyanine/Water Solution



Wang Zhang, Chunying He,* Xiangwu Xiao, Weina Song, Yachen Gao, Zhimin Chen, Yongli Dong, Yiqun Wu, Qian Wang

The nonlinear refraction of tetrasodium salt of copper tetrasulfophthalocyanine in water was investigated by using Z-scan technique at 532 nm with different input energy and different pulse width. We reported the competition between the excited-state refraction and excited-state-thermal-induced refraction. The sign change of nonlinear refraction induced by thermal effect was observed and analyzed.

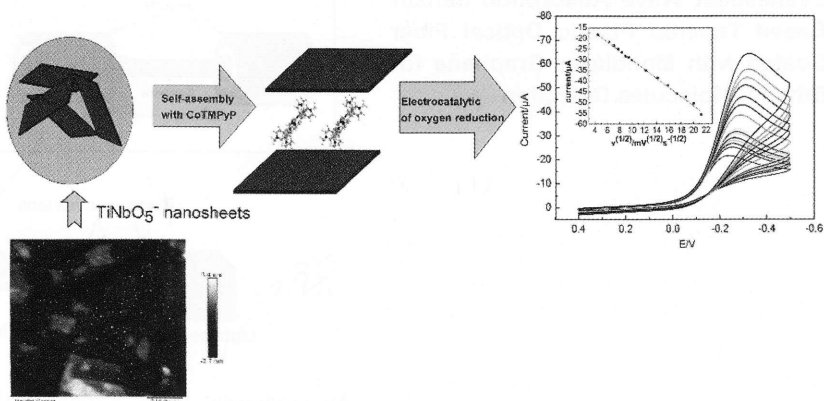
1013

Synthesis of Asymmetrical Mono-benzo-Substituted Cobalt Thioporphyrines and Their Biomimetic Catalytic Property

Peng Zhou, Juanjuan Jin, Bingguang Zhang, Changjun Yang,* Zehui Zhang, Zhe Li, Kejian Deng*

Two novel monobenzoporphyrines bearing nitro and methoxyl respectively on fused benzene ring were successfully synthesized. The catalytic ability of their corresponding cobalt complexes was assessed by aerobic oxidation of benzoin to benzil.

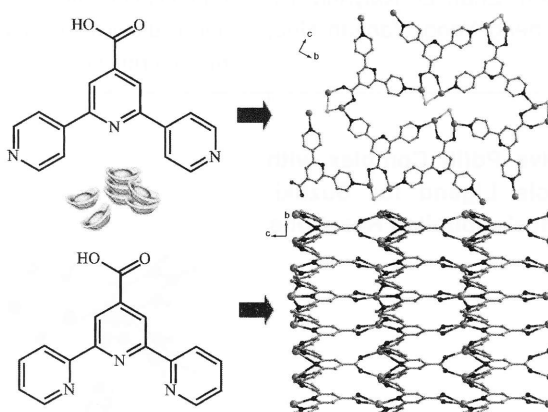
1021

Application of a Nanostructured Composite Material Constructed by Self-Assembly of Titanoniobate Nanosheets and Cobalt Porphyrin to Electrocatalytic Reduction of Oxygen

A novel nanocomposite CoTMPyP-TiNbO₅ was fabricated by self-assembling of TiNbO₅⁻ nanosheets and 5,10,15,20-tetrakis(*N*-methyl-pyridinium-4-yl)porphyrinacocobalt (III) (CoTMPyP). As an electrode modifying material, CoTMPyP/TiNbO₅ hybrid film exhibited good electrocatalytic activity towards oxygen reduction. Through the cyclic voltammetry test, oxygen is reduced by CoTMPyP-TiNbO₅ with a two-electron process to H₂O₂.

Jinpeng Li, Xiaobo Zhang, Binbin Pan, Jiasheng Xu, Lin Liu, Juanjuan Ma, Min Yang, Zhenye Zhang, Zhiwei Tong*

1027

Silver(I) Architectures Based on Rigid Terpyridyl-Carboxyl Ligands: Synthesis, Crystal Structure and Electrochemical Properties

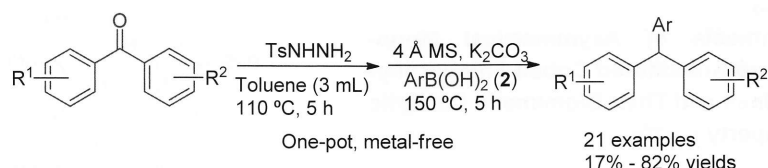
Two novel Ag(I) coordination polymers, have been synthesized through solvothermal reaction of silver(I) nitrate and highly-connected terpyridinate-carboxyl ligands and structurally characterized, along with the results about TGA, UV-vis, photoluminescence spectra and electrochemistry.

Biquan Zhang, Xi Chen, Fan Yu, Min Su, Bao Li,* Tianle Zhang*

CONTENT

1033

One-Pot Synthesis of Triarylmethanes via Metal-Free Reductive Coupling of Diaryl Ketones, Tosylhydrazide, and Arylboronic Acids

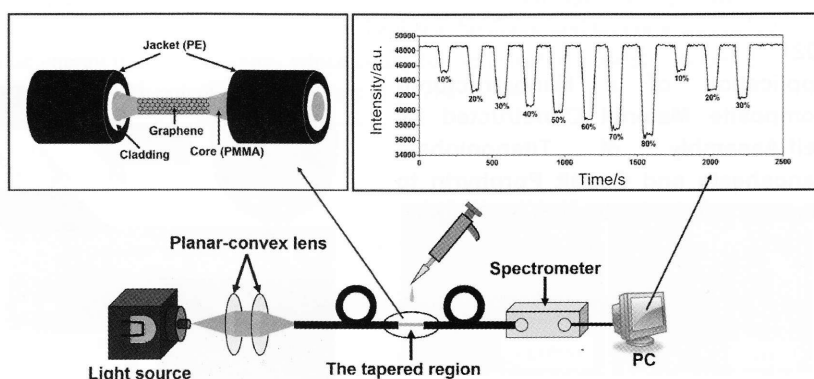


Synthesis of triarylmethanes via metal-free reductive coupling of diaryl ketone, tosylhydrazide, and arylboronic acids has been developed. This methodology is realized via one-pot two-step reactions involving the preparation of *N*-tosylhydrazones by reacting tosylhydrazide with diaryl ketone derivatives, followed by the reductive coupling with arylboronic acid in the presence of potassium carbonate to afford various triarylmethanes analogues in moderate to good yields. Importantly, the system presented here enables the use of easily accessible starting materials and a series of substrates with diverse functional group could be tolerant in this reaction. This approach could also be particularly useful for the synthesis of triaryl-substituted carbazolyl compounds.

Xu Shen, Ningning Gu, Ping Liu,*
Xiaowei Ma, Jianwei Xie, Yan Liu,* Bin Dai

1039

Evanescent Wave Absorption Sensor Based Tapered Plastic Optical Fiber Coated with Monolayer Graphene for Ethanol Molecules Detection

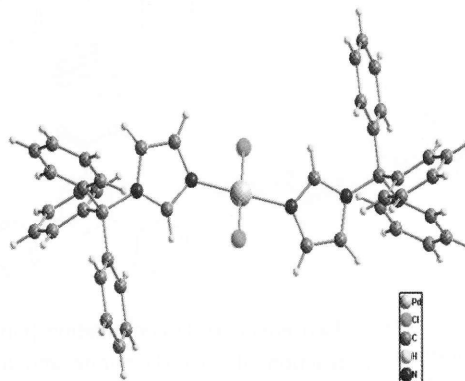


An evanescent wave absorption (EWA) sensor based tapered plastic optical fiber (TPOF) coated with monolayer graphene film for ethanol molecules detection is demonstrated. The accuracy of the TPOF sensor with graphene (G-TPOF sensor) is much higher than that without graphene (TPOF sensor), which can be attributed to the molecular enricher of graphene. The absorbance (*A*) and the concentrations of ethanol solution show an excellent proportional relationship in a range of 0–100%. The dynamic response of the G-TPOF sensor has shown strong reversibility, repeatability and stability at room temperature. The response time and recovery time of the G-TPOF sensor for different concentrations are all less than 30 s. Beyond that, we selected the Chinese liquor as the analyte, and the results are consistent with the concentration-list obtained in the experiment.

Shouzhen Jiang,* Hengwei Qiu, Saisai Gao, Peixi Chen, Zhen Li, Kaiyang Yu, Weiwei Yue, Cheng Yang, Yanyan Huo, Shuyun Wang

1048

A Highly Active Pd(II) Complex with 1-Tritylimidazole Ligand for Suzuki-Miyaura and Heck Coupling Reactions

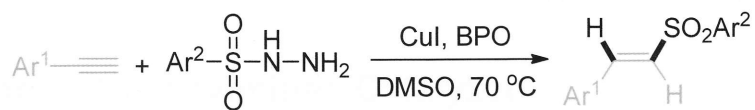


A new palladium(II) complex containing 1-tritylimidazole ligand has been prepared and characterized. The structure of palladium(II) complex has been determined by X-ray crystallography. This complex was found to be efficient for the Suzuki-Miyaura coupling reactions of aryl chloride with a variety of phenylboronic acid and Heck coupling reactions of

Chengxin Liu, Guiyan Liu*, Hongkun Zhao*

aryl halides with methyl acrylate.

1053

**Copper-Catalyzed Hydrosulfonylation
of Alkynes Employing Sulfonohydra-
zides toward the Synthesis of Vinyl
Sulfones**Deqing Hu, Feicheng Bai, Yunyun Liu,*
Jie-Ping Wan*

An efficient catalytic approach toward the synthesis of vinyl sulfones by means of the alkyne hydrosulfonylation has been realized via BPO assisted copper(I) catalysis. The reactions are run under mild conditions by using bench stable sulfonohyrazides as reaction partners.