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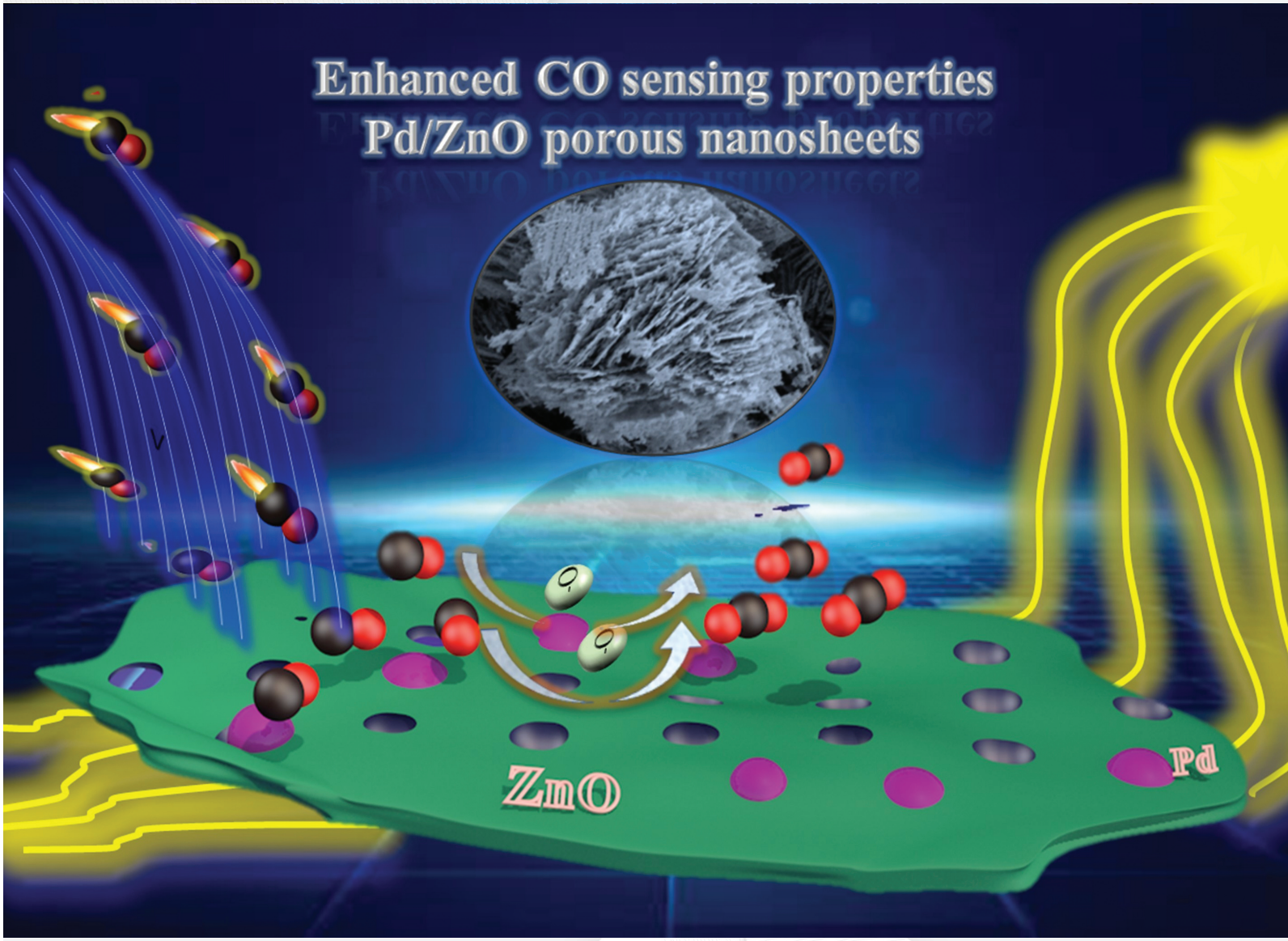
## Chinese Chemical Letters (中国化学快报)

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# Graphical Abstracts/Chin Chem Lett 31 (2020) iii–x

## Special Issue: Gas sensor

## Editorial

### Editorial: Gas sensor

*Chinese Chemical Letters 31 (2020) 2027*

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## Communications

### Microwave-assisted hydrothermal synthesis of Pt/$SnO_2$ gas sensor for CO detection

*Chinese Chemical Letters 31 (2020) 2029*

Qingji Wang[a], Liwen Bao[a], Zongqiang Cao[a], Chaoyang Li[a], Xu Li[b], Fangmeng Liu[c], Peng Sun[c], Geyu Lu[c]

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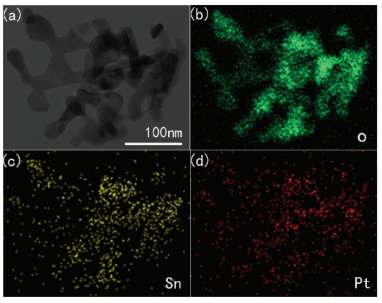


The CO gas sensor was fabricated by Pt/$SnO_2$ and perform good gassensing performances. The enhanced gas-sensing performances of sensor can be attributed to the effectively uniform distribution of Pt particles in $SnO_2$.

### Enhanced CO sensing properties of Pd modified ZnO porous nanosheets

*Chinese Chemical Letters 31 (2020) 2033*

Na Luo[a], Bo Zhang[b], Dan Zhang[a], Jiaqiang Xu[a]

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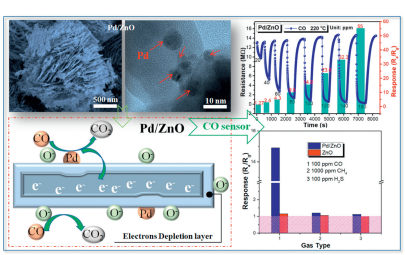
[b] *School of Materials Science and Engineering, Cultivating Base for Key Laboratory of Environment-friendly Inorganic Materials in University of Henan Province, Henan Polytechnic University, Jiaozuo 454000, China*




The Pd/ZnO sensor has excellent selectivity to CO and the response of the Pd/ZnO sensor towards 100 ppm CO was as high as 15 ($R_a/R_g$), obviously higher than that of the pristine ZnO sensor (1.4) when the optical working temperature is 220 °C.

doi:10.1016/S1001-8417(20)30341-7

## Morphology evolution of ZnO by controlling solvent and electrochemical sensing of hexagonal nanotablets toward amines

Md. Maruf Ahmed[a], Ruihua Zhao[a,b], Bayram Hayytov[a], Yangyang Shang[a], Jinping Li[a,c], Jianping Du[a,c]

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ZnO materials possessing hexagonal shapes and different sizes exhibit distinct electrochemical response in amines solution. The regular hexagonal ZnO nanotablets with ultrathin nanosheets served as electrochemical sensor exhibit ultra-sensitive electrochemical response and selectivity to ammonia.

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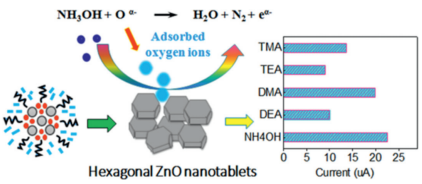


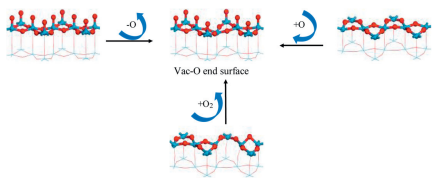

## Oxygen vacancy O-terminated surface: The most exposed surface of hexagonal $WO_3$ (001) surface

Feng Hui Tian, Zhenze Liu, Jin Tian, Yunfan Zhang

*Institute of Computational Science and Engineering, State Key Laboratory of Bio-Fibers and Eco-Textiles & College of Chemistry and Chemical Engineering & College of Environmental Science and Engineering, Qingdao University, Qingdao 266071, China*

Oxygen vacancy O-terminated surface is confirmed the most exposed h-$WO_3$ (001) surface theoretically for the first time, which determine the material's performance actually.

Chinese Chemical Letters 31 (2020) 2095




## Preparation of two-dimensional molybdenum disulfide for $NO_2$ detection at room temperature

Xin Yu[a], Ding Wang[a], Yuqiu Wang[a], Ji Yan[b], Xianying Wang[a]

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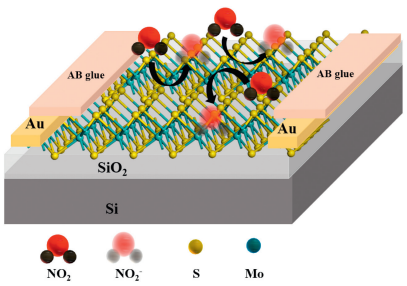
Two-dimensional $MoS_2$ thin film was prepared by sulfureting molybdenum atomic layer pre-evaporated on $SiO_2$/Si, and the $MoS_2$ gas sensor was fabricated for detecting $NO_2$ at room temperature.

Chinese Chemical Letters 31 (2020) 2099




## Fast response speed of mechanically exfoliated $MoS_2$ modified by PbS in detecting $NO_2$

Junjiang Tan[a], Jinyong Hu[a], Jianxu Ren[a], Jinfeng Peng[c], Can Liu[a], Yiqiao Song[a], Yong Zhang[a,b]

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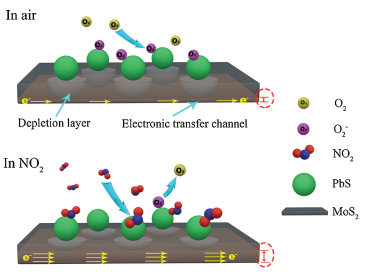
Benefited from the synergistic effect between $MoS_2$ nanosheet and PbS particles, the gas sensor based on PbS@$MoS_2$ exhibits high response value and fast response speed to $NO_2$.

Chinese Chemical Letters 31 (2020) 2103



## High ammonia sensitive ability of novel $Cu_{12}Sb_4S_{13}$ quantum dots@reduced graphene oxide nanosheet composites at room temperature

Yueli Liu[a], Binghua Sang[a], Haoran Wang[a], Zijing Wu[a], Yuxuan Wang[a], Ziwei Wang[a], Zhuoyin Peng[c], Wen Chen[b]

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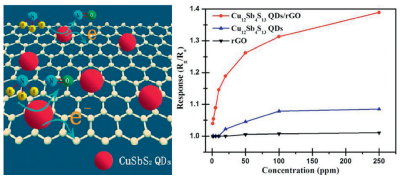
[b] State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, School of Materials Science and Engineering, Wuhan University of Technology, Wuhan 430070, China
[c] The Key Laboratory of Efficient & Clean Energy Utilization, School of Energy and Power Engineering, Changsha University of Science and Technology, Changsha 410111, China

Chinese Chemical Letters 31 (2020) 2109




Schematic diagram of the gas sensing mechanism and performance of $Cu_{12}Sb_4S_{13}$ quantum dots@rGO composites towards $NH_3$ at room temperature.

## $RhIr@MoS_2$ nanohybrids based disposable microsensor for the point-of-care testing of NADH in real human serum

Dongqing Ji[a,b], Zi Ying[a], Yuan Zhang[a,b], Wei Chen[c], Metini Janyasupab[d], Xinghua Gao[a], Lingyan Feng[a], Weijia Wen[a]

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[b] State Key Laboratory of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, China
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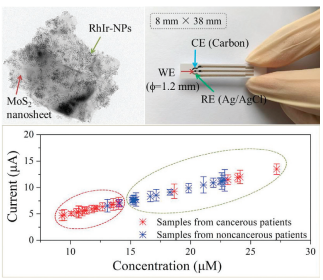
[d] Department of Electronics Engineering, King Mongkut's Institute of Technology Ladkrabang, Bangkok 10520, Thailand

Chinese Chemical Letters 31 (2020) 2115



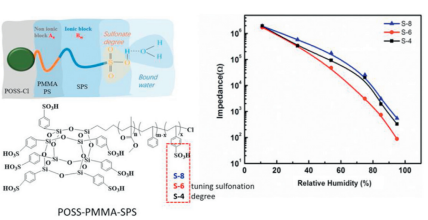

$RhIr@MoS_2$ nanohybrids based microsensor is developed for the analysis of NADH in biological fluids, and help to differentiate between cancer patients and health controls. Real human serum samples assay displays good diagnostic sensitivity and specificity, indicating that the proposed electrochemical microsensor assay is expected to be used as an adjunct to biopsy in clinical cancer diagnosis.

## Novel, tadpole-shaped, polyhedral oligomeric silsesquioxane containing sulfonated block copolymer for humidity sensing

Fang Chen, Jiayu Yang, Rong Cai, Mengfei Qi, Xiaoyan Ma

*The Key Laboratory of Polymer Science and Technology of Shaanxi Province, School of Chemistry and Chemical Engineering, Northwestern Polytechnical University, Xi'an 710129, China*

Chinese Chemical Letters 31 (2020) 2119




A novel serial of tadpole-shaped, polyhedral oligomeric silsesquioxane (POSS) containing block copolymers (BCPs) of POSS-poly(methyl methacrylate)-sulfonated polystyrene (POSS-PMMA-SPS) was synthesized. The sulfonated BCPs were applied as polymer matrix for resistive-type polymer-based humidity sensors with a wide impedance response and excellent stability under high relative humidity.

## Superhydrophobic hierarchical porous divinylbenzene polymer for BTEX sensing and toluene/water selective detection

Yang Chen[a], Luyu Wang[b], Jiawei Kong[a], Bing Shen[c], Jiaqiang Xu[a]

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[b] Institute of Fiber Based New Energy Materials, The Key Laboratory of Advanced Textile Materials and Manufacturing Technology of Ministry of Education, School of Materials Science and Engineering, Zhejiang Sci-Tech University, Hangzhou 310018, China
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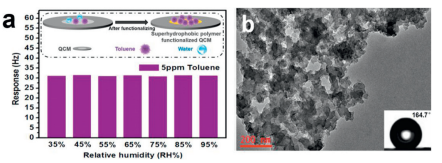
Chinese Chemical Letters 31 (2020) 2125




This work reports a superhydrophobic divinylbenzene polymer with hierarchical porous structure as sensing material to modify the quartz crystal microbalance (QCM) to detect benzene, toluene, ethylbenzene, and xylene (BTEX) vapor. Notably, sensing results toward toluene vapor in different relative humidities indicates that this superhydrophobic polymer has favorable toluene/water selective detection performance. Besides, the limit of detection toward toluene is lower than 1 ppm.

## Materials design and sensing mechanism of novel calix[6]arene composite for sensitively detecting amine drugs

Chinese Chemical Letters 31 (2020) 2129

Nana Liu[a], Yu Fan[b], Zhiheng Ma[b], Haixia Lin[a], Jiaqiang Xu[a]

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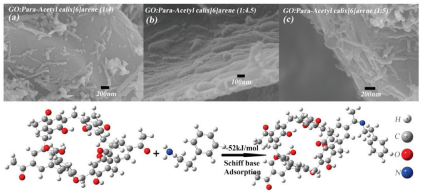

The picture is composite of *p*-acetylcalix[6]arene and GO with different proportions and the Gaussian simulation of the schiff base mechanism of acetylcalixarene accords with the principle of reversible adsorption.

## *In-situ* growth of $V_2O_5$ flower-like structures on ceramic tubes and their trimethylamine sensing properties

Chinese Chemical Letters 31 (2020) 2133

Dan Meng[a], Jianpeng Si[a], Mingyue Wang[b], Guosheng Wang[a], Yanbai Shen[c], Xiaoguang San[a], Fanli Meng[d]

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[b] School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China
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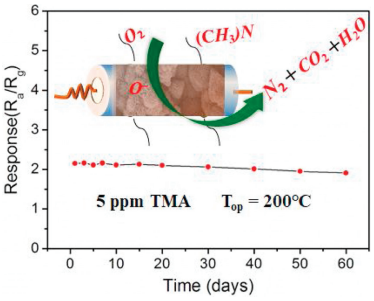


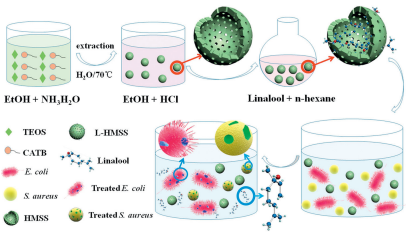

$V_2O_5$ flower-like structures assembled by thin nanosheets were *in-situ* growth on ceramic tubes by hydrothermal process, which exhibited good TMA sensing properties.

## Fabrication linalool-functionalized hollow mesoporous silica spheres nanoparticles for efficiently enhance bactericidal activity

Chinese Chemical Letters 31 (2020) 2137

Li Jin[a], Xun Liu[a], Changhao Bian[a], Jie Sheng[a,b], Yishan Song[a,b], Yongheng Zhu[a,b]

[a] College of Food Science and Technology, Shanghai Ocean University, Shanghai 201306, China
[b] College of Food Science and Technology, Laboratory of Quality & Safety Risk Assessment for Aquatic Products on Storage and Preservation (Shanghai), Ministry of Agriculture and Shanghai Engineering Research Center of Aquatic-Product Processing & Preservation, Shanghai Ocean University, Shanghai 201306, China



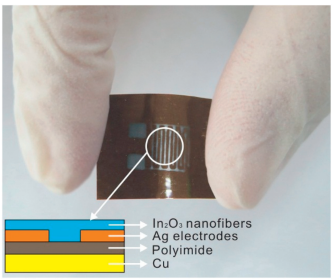

Linalool-functionalized hollow mesoporous silica spheres (L-HMSS) were synthesized by using hollow mesoporous silica nanospheres (HMSS) as carrier and the enhanced antimicrobial activity are attributed to the hollow spheres with large surface area and high loading capacity.

## Deposition of $In_2O_3$ nanofibers on polyimide substrates to construct high-performance and flexible trimethylamine sensor

Chinese Chemical Letters 31 (2020) 2142

Yong Li, Jiaqing Liu, Jingjing Zhang, Xiu Liang, Xingshuang Zhang, Qi Qi

*National Supercomputer Research Center of Advanced Materials, Advanced Materials Institute, Qilu University of Technology (Shandong Academy of Sciences), Ji'nan 250014, China*




High performance and flexible sensing properties have been realized against to trimethylamine based on $In_2O_3$ nanofibers *via* electrospinning and a deposition technique. High response value, short response and recovery times, good reliability and flexibility are observed at 80 °C. The sensitivity is up to 3.8 when the sensor was exposed to 1 ppm TMA gas, and the average response and recovery times are 6 and 10 s, respectively.

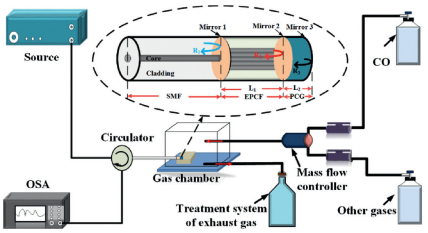
## Fiber-optic dual Fabry-Pérot interferometric carbon monoxide sensor with polyaniline/$Co_3O_4$/graphene oxide sensing membrane

Jin Peng[a], Jie Liao[a], Xiaozhan Yang[a,b], Wenlin Feng[a,b]

[a] *Department of Physics and Energy, Chongqing University of Technology, Chongqing 400054, China*
[b] *Chongqing Key Laboratory of Green Energy Materials Technology and Systems, Chongqing 400054, China*

An optical fiber dual Fabry-Pérot interferometric carbon monoxide gas sensor based on PANI/$Co_3O_4$/GO (PCG) sensing film coated on the end face of the optical fiber is proposed and fabricated. The sensor has the advantages of small size, light weight, easy preparation, high sensitivity and selectivity, and could be applied for trace detection of CO in toxic environmental monitoring.

*Chinese Chemical Letters 31 (2020) 2145*



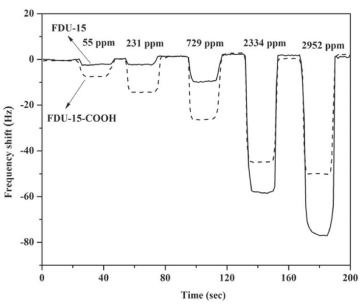

## Preparation of functional ordered mesoporous carbons and their application as the QCM sensor with ultra-low humidity

Ye Zhu[a], Weijia Zhang[a], Jiaqiang Xu[b]

[a] *The State Key Laboratory of Molecular Engineering of Polymers, Department of Chemistry, Fudan University, Shanghai 200433, China*
[b] *Department of Physics & Department of Chemistry, College of Science, Shanghai University, Shanghai 200444, China*

FDU-15-COOH exhibited a higher response and greater long-term stability than pristine FDU-15 to an ultra-low humidity (< 729 $ppm_v$), which implied that FDU-15-COOH was a favorable candidate as the QCM sensor at low humidity.

*Chinese Chemical Letters 31 (2020) 2150*




## $H_2S$ gas sensor based on integrated resonant dual-microcantilevers with high sensitivity and identification capability

Lei Tang[a,b], Pengcheng Xu[b], Ming Li[b], Haitao Yu[b], Xinxin Li[b]

[a] *College of Life and Environmental Sciences, Shanghai Normal University, Shanghai 200234, China*
[b] *State Key Lab of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, China*

We report a novel integrated resonant dual-microcantilevers combined $H_2S$ gas sensor which can identify and detect trace-level $H_2S$.

*Chinese Chemical Letters 31 (2020) 2155*