

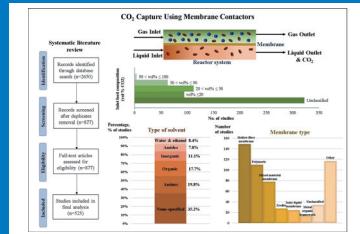
## EDITORIAL

- 717** Novel membrane separation technologies and membrane processes  
**Yanying Wei, Gongping Liu, Jianquan Luo, Libo Li, Zhi Xu**

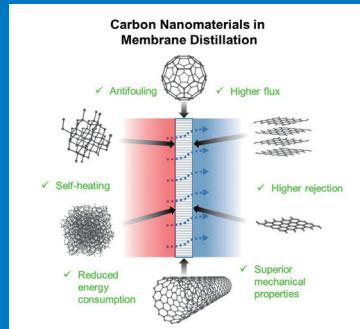
## REVIEW ARTICLE

- 720** CO<sub>2</sub> capture using membrane contactors: a systematic literature review  
**Sanaa Hafeez, Tayeba Safdar, Elena Pallari, George Manos, Elsa Aristodemou, Zhien Zhang, S. M. Al-Salem, Achilles Constantinou**

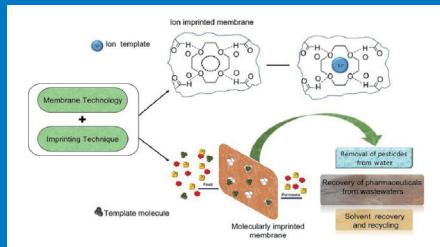
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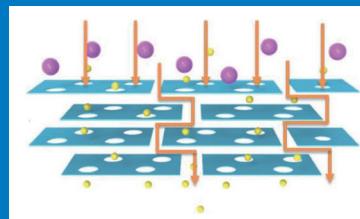
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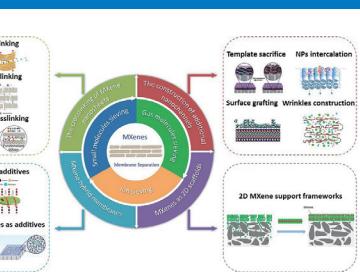
**775**



**793**



**820**



- 755** The use of carbon nanomaterials in membrane distillation membranes: a review  
**Sebastian Leaper, Ahmed Abdel-Karim, Patricia Gorgojo**

- 775** Imprinted membranes for sustainable separation processes  
**Laura Donato, Enrico Drioli**

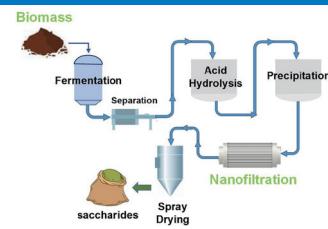
- 793** Recent progress of two-dimensional nanosheet membranes and composite membranes for separation applications  
**Wei Wang, Yanying Wei, Jiang Fan, Jiahao Cai, Zong Lu, Li Ding, Haihui Wang**

- 820** Recent progress in the design and fabrication of MXene-based membranes  
**Kai Qu, Kang Huang, Zhi Xu**

- 837** Nanofiltration for separation and purification of saccharides from biomass

**Xianhui Li, Sheng Tan, Jianquan Luo,  
Manuel Pinelo**

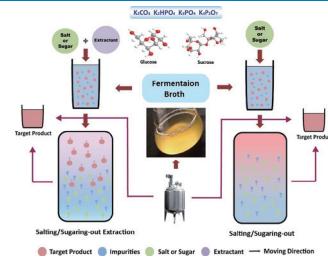
**837**



- 854** A review of salting-out effect and sugaring-out effect: driving forces for novel liquid-liquid extraction of biofuels and biochemical

**Chuhan Fu, Zhuoxi Li, Zengran Sun, Shaoqu Xie**

**854**



## RESEARCH ARTICLE

- 872** Recovery of free volume in PIM-1 membranes through alcohol vapor treatment

**Faiz Almansour, Monica Alberto,  
Rupesh S. Bhavsar, Xiaolei Fan, Peter M. Budd,  
Patricia Gorgojo**

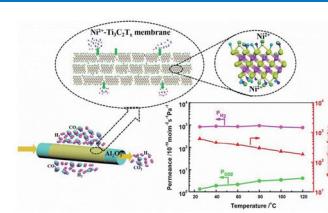
**872**



- 882** Nickel(II) ion-intercalated MXene membranes for enhanced H<sub>2</sub>/CO<sub>2</sub> separation

**Yiyi Fan, Jinyong Li, Saidi Wang, Xiuxia Meng,  
Yun Jin, Naitao Yang, Bo Meng, Jiaquan Li,  
Shaomin Liu**

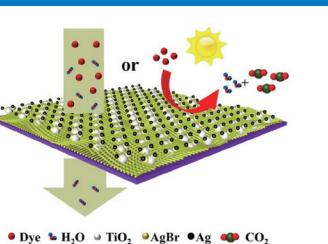
**882**



- 892** Novel Ag-AgBr decorated composite membrane for dye rejection and photodegradation under visible light

**Yixing Wang, Liheng Dai, Kai Qu, Lu Qin,  
Linzhou Zhuang, Hu Yang, Zhi Xu**

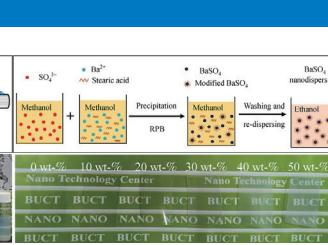
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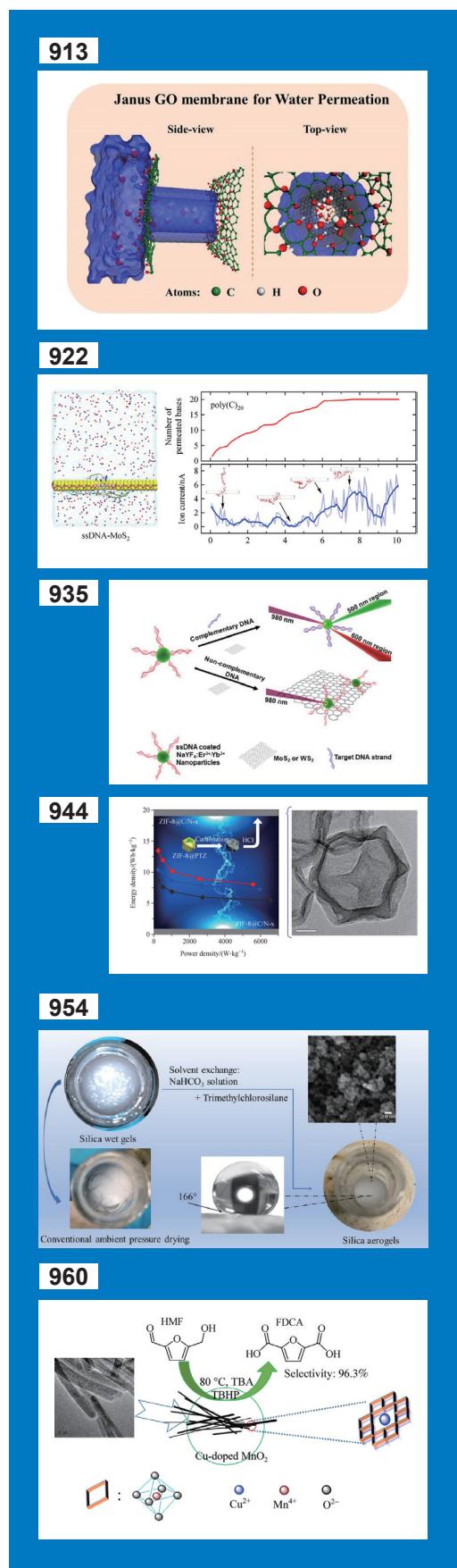
- 902** Preparation of transparent BaSO<sub>4</sub> nanodispersions by high-gravity reactive precipitation combined with surface modification for transparent X-ray shielding nanocomposite films

**Le Fang, Qian Sun, Yong-Hong Duan, Jing Zhai,  
Dan Wang, Jie-Xin Wang**

**902**

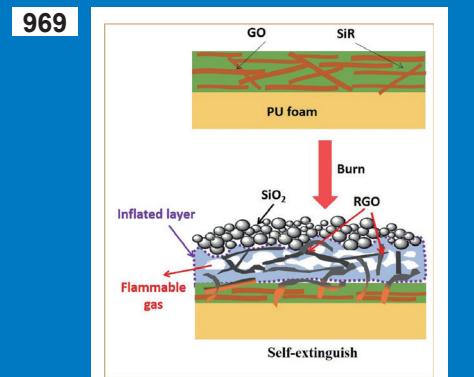


- 913** Theoretical study on Janus graphene oxide membrane for water transport  
**Quan Liu, Mingqiang Chen, Yangyang Mao, Gongping Liu**
- 922** Molecular dynamics simulation on DNA translocating through MoS<sub>2</sub> nanopores with various structures  
**Daohui Zhao, Huang Chen, Yuqing Wang, Bei Li, Chongxiong Duan, Zhixian Li, Libo Li**
- 935** A DNA sensor based on upconversion nanoparticles and two-dimensional dichalcogenide materials  
**Konstantina Alexaki, Davide Giust, Maria-Eleni Kyriazi, Afaf H. El-Sagheer, Tom Brown, Otto L. Muskens, Antonios G. Kanaras**
- 944** Pyrolysis transformation of ZIF-8 wrapped with polytriazine to nitrogen enriched core-shell polyhedrons carbon for supercapacitor  
**Nuoya Wang, Xinhua Huang, Lei Zhang, Jinsong Hu, Yimin Chao, Ruikun Zhao**
- 954** Effect of sodium bicarbonate solution on methyltrimethoxysilane-derived silica aerogels dried at ambient pressure  
**Yujing Liu, Xiao Han, Balati Kuerbanjiang, Vlado K. Lazarov, Lidija Šiller**
- 960** Efficient base-free oxidation of 5-hydroxymethylfurfural to 2,5-furandicarboxylic acid over copper-doped manganese oxide nanorods with *tert*-butanol as solvent  
**Feng Cheng, Dongwen Guo, Jinhua Lai, Meihui Long, Wenguang Zhao, Xianxiang Liu, Dulin Yin**



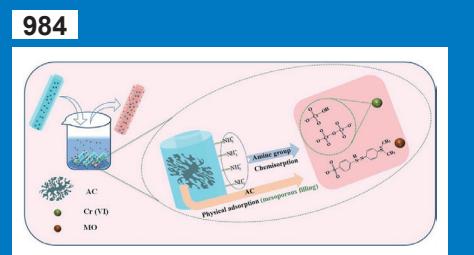
**969** Exceptionally flame-retardant flexible polyurethane foam composites: synergistic effect of the silicone resin/grapheme oxide coating

**Qian Wu, Jincheng Zhang, Shengpeng Wang, Bajin Chen, Yijun Feng, Yongbing Pei, Yue Yan, Longcheng Tang, Huayu Qiu, Lianbin Wu**



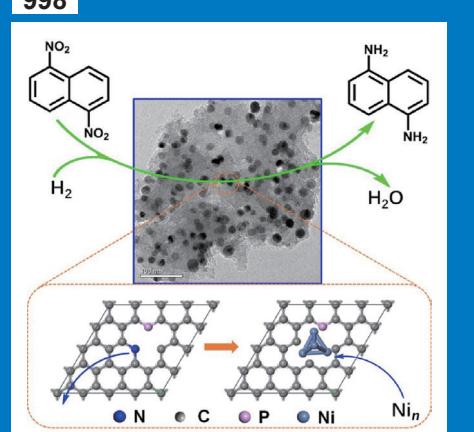
**984** Activated carbon-hybridized and amine-modified polyacrylonitrile nanofibers toward ultrahigh and recyclable metal ion and dye adsorption from wastewater

**Fengli Li, Chuang Chen, Yuda Wang, Wenpeng Li, Guoli Zhou, Haoqin Zhang, Jie Zhang, Jingtao Wang**



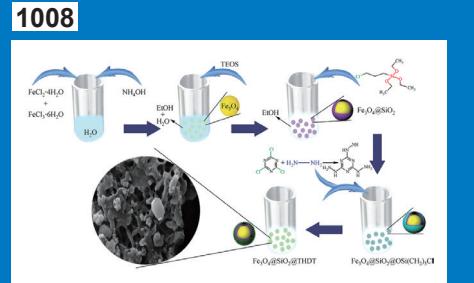
**998** Highly uniform Ni particles with phosphorus and adjacent defects catalyze 1,5-dinitronaphthalene hydrogenation with excellent catalytic performance

**Wei Xiong, Susu Zhou, Zeyong Zhao, Fang Hao, Zhihui Cai, Pingle Liu, Hailiang Zhang, Hean Luo**



**1008** Trihydrazinotriazine-grafting  $\text{Fe}_3\text{O}_4/\text{SiO}_2$  core-shell nanoparticles with expanded porous structure for organic reactions

**Jamal Rahimi, Seyedeh Shadi Mirmohammadi, Ali Maleki**



**1021** High-performance supercapacitors based on  $\text{Ni}_2\text{P}@\text{CNT}$  nanocomposites prepared using an ultrafast microwave approach

**Yunrui Tian, Haishun Du, Shatila Sarwar, Wenjie Dong, Yayun Zheng, Shumin Wang, Qingping Guo, Jujie Luo, Xinyu Zhang**

