

In this issue

Shu Wan, Hengchang Bi and
Litao Sun

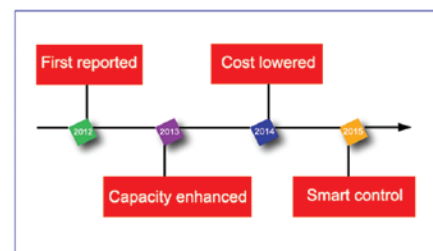
Graphene and carbon-based nanomaterials as highly efficient adsorbents for oils and organic solvents

DOI 10.1515/ntrev-2015-0062

Nanotechnol Rev 2016; 5(1): 3–22

Review: This paper provides a comprehensive review of recent progress in the synthesis and performance of graphene and carbon-based nanomaterials as efficient adsorbents for oils and organic solvents.

Keywords: adsorbents; carbon-based; graphene; sponge.



Peidong Hu, Beihui Tan and
Mingce Long

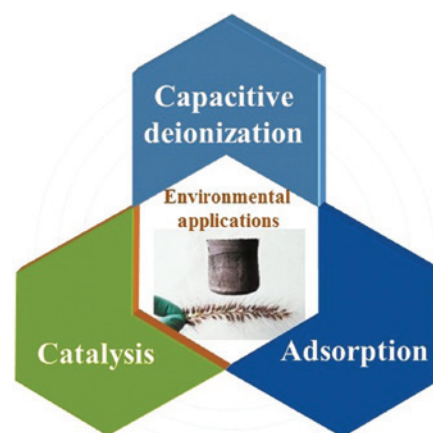
Advanced nanoarchitectures of carbon aerogels for multifunctional environmental applications

DOI 10.1515/ntrev-2015-0050

Nanotechnol Rev 2016; 5(1): 23–39

Review: Carbon aerogels have great potential in a variety of environmental applications, including adsorption, capacitive deionization and catalysis.

Keywords: capacitive deionization; carbon aerogel; catalysis; nano-architecture; water purification.



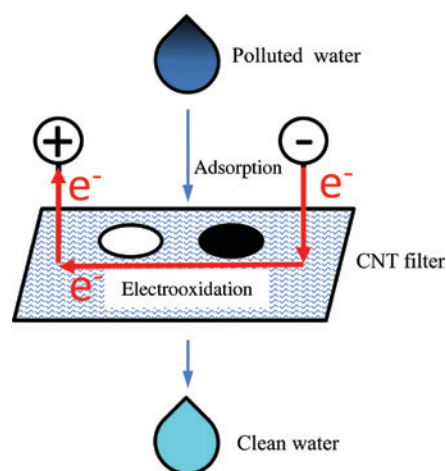
Sadia A. Jame and Zhi Zhou
**Electrochemical carbon nanotube
filters for water and wastewater
treatment**

DOI 10.1515/ntrev-2015-0056

Nanotechnol Rev 2016; 5(1): 41–50

Review: The working principles, impacting factors, latest development and existing challenges of electrochemically active CNT filters are reviewed in this paper.

Keywords: carbon nanotube filters; electrochemical treatment; electrooxidation; wastewater treatment; water treatment.



Su-Xi Wang, Chin Chong Yap,
Jiating He, Chao Chen,
Siew Yee Wong and Xu Li

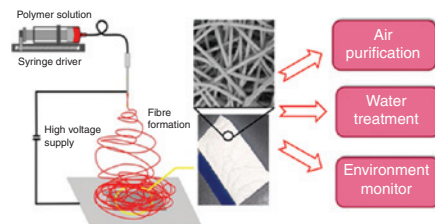
**Electrospinning: a facile technique
for fabricating functional nanofibers
for environmental applications**

DOI 10.1515/ntrev-2015-0065

Nanotechnol Rev 2016; 5(1): 51–73

Review: An overview is given on the latest research progress in the fabrication and utilization of functional electrospun polymer nanofibers, ceramic nanofibers, and carbon nanofibers for air and water purification, as well as their applications as sensors for pollutant monitoring and control.

Keywords: air purification; electrospinning; nanofibers; sensors; water treatment.



Ming-Zheng Ge, Chun-Yan Cao,
Jian-Ying Huang, Shu-Hui Li,
Song-Nan Zhang, Shu Deng,
Qing-Song Li, Ke-Qin Zhang and
Yue-Kun Lai

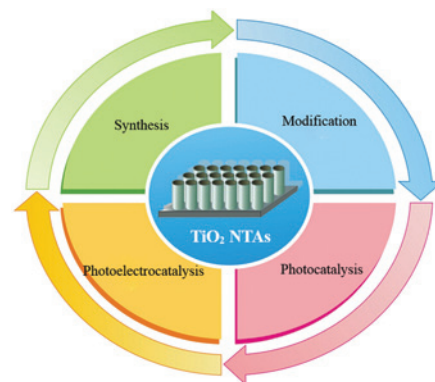
**Synthesis, modification, and
photo/photoelectro catalytic
degradation applications of TiO₂
nanotube arrays: a review**

DOI 10.1515/ntrev-2015-0049

Nanotechnol Rev 2016; 5(1): 75–112

Review: The state-of-the-art development of environmental applications of one-dimension TiO₂ nanostructures is reviewed, especially the electrochemical anodizing TiO₂ nanotube arrays.

Keywords: electrochemical anodization; modification; photocatalysis; photoelectrocatalysis; TiO₂ nanotube.



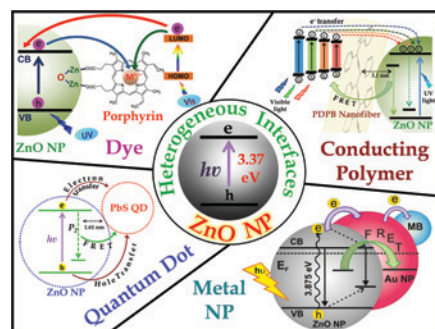
Samim Sardar and Samir Kumar Pal
**Ultrafast photoinduced carrier
dynamics at ZnO nanohybrid
interfaces for light-harvesting
applications**

DOI 10.1515/ntrev-2015-0053

Nanotechnol Rev 2016; 5(1): 113–134

Review: The main focus of this review is to unravel the ultrafast dynamical processes across the interface of heterostructures to enhance the solar light-harvesting efficiency.

Keywords: Förster resonance energy transfer (FRET); interfacial carrier dynamics; light-harvesting heterostructures; UV and visible-light photocatalysis; zinc oxide.



Wei Jiao, Wei Shen, Zia Ur Rahman
and Daoai Wang

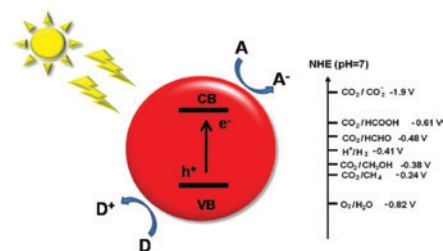
Recent progress in red semiconductor photocatalysts for solar energy conversion and utilization

DOI 10.1515/ntrev-2015-0052

Nanotechnol Rev 2016; 5(1): 135–145

Review: Recent progress made in the field of photocatalysis is reviewed, concentrating on the scientific and technological possibilities offered by three kinds of red semiconductor photocatalysts for water splitting, organic contaminant decomposition, and CO_2 photoreduction.

Keywords: photocatalysis; photocatalytic activities; red photocatalyst; solar energy.



Jiaqi Li, Hui Liu, Yuzhou Deng, Gang
Liu, Yunfa Chen and Jun Yang
**Emerging nanostructured materials
for the catalytic removal of volatile
organic compounds**

DOI 10.1515/ntrev-2015-0051

Nanotechnol Rev 2016; 5(1): 147–181

Review: Recent impressive developments in nanostructured noble metals and transition metal oxides for the catalytic removal of volatile organic compounds are reviewed.

Keywords: catalyst; catalytic oxidation; nanostructured materials; noble metal, transition-metal oxide; volatile organic compounds.

