

In this issue

Ahmed Ali, Hassan Barada and Moh'd Rezeq

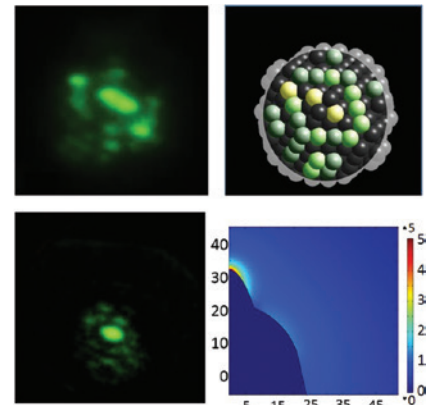
Characterization and modeling of nanotips fabricated in the field ion microscope

DOI 10.1515/ntrev-2015-0037

Nanotechnol Rev 2016; 5(3): 301–309

Review: An approach is presented for estimating nanotip apex radii using ball crystal models, and also estimating the overall nanotip profile using finite element simulation.

Keywords: characterization; fabrication; modeling; nanotips; simulation.



Baker Mohammad, Maguy Abi Jaoude, Vikas Kumar, Dirar Mohammad Al Homouz, Heba Abu Nahla, Mahmoud Al-Qutayri and Nicolas Christoforou

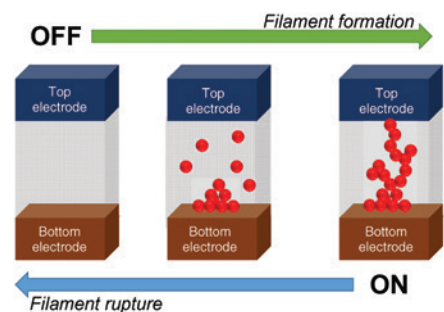
State of the art of metal oxide memristor devices

DOI 10.1515/ntrev-2015-0029

Nanotechnol Rev 2016; 5(3): 311–329

Review: Recent advancements and characteristics of memristive devices are presented, with special focus on their established resistive switching mechanisms as well as the key challenges associated with their fabrication processes.

Keywords: memory technology; memristor; RRAM; thin films.



Ibrahim Yildiz

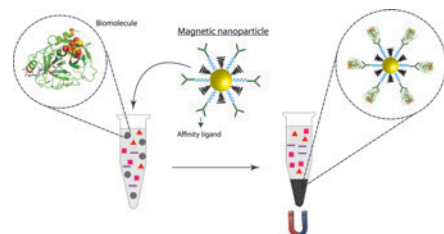
Applications of magnetic nanoparticles in biomedical separation and purification

DOI 10.1515/ntrev-2015-0012

Nanotechnol Rev 2016; 5(3): 331–340

Review: Magnetic nanoparticles immobilized with affinity ligands are capable of capturing target biomolecules selectively and sensitively in the presence of other biomolecules and species by application of an external magnetic field. The method enables facile and efficient enrichment and purification of target biomolecules on short timescales.

Keywords: biosensor; iron oxide; magnetic separation; nanoparticles; superparamagnetic particles.



Jamal Hassan, Georgios
Diamantopoulos, Dirar Homouz and
Georgios Papavassiliou

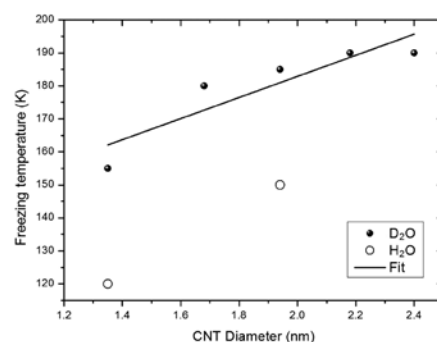
Water inside carbon nanotubes: structure and dynamics

DOI 10.1515/ntrev-2015-0048

Nanotechnol Rev 2016; 5(3): 341–354

Review: A comprehensive review of recent nuclear magnetic resonance and molecular dynamics simulations on confined water inside carbon nanotubes are presented in this article.

Keywords: molecular simulations; nuclear magnetic resonance; water in carbon nanotubes.



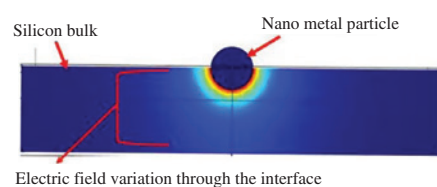
Khoulood Eledlebi, Mohammed
Ismail and Moh'd Rezeq
**Finite element simulation
and analysis of nanometal-
semiconductor contacts**

DOI 10.1515/ntrev-2015-0039

Nanotechnol Rev 2016; 5(3): 355–362

Research highlight: A finite element simulation software is used to build the geometry of nanometal particle embedded in the surface of semiconductor substrate and analyze the maximum electric field at the interface along with the *I-V* characteristics.

Keywords: nanodevices; nanometal particles; nano-Schottky junctions; thermionic current; tunneling current.



Sally Al Shawa, Nayla El-Kork,
Ghassan Younes and Mahmoud Korek
**Theoretical study with dipole
moment calculation of new
electronic states of the molecule BF**

DOI 10.1515/ntrev-2015-0006

Nanotechnol Rev 2016; 5(3): 363–368

Research highlight: Twelve electronic states of BF molecule that are not yet observed experimentally are reported here for the first time.

Keywords: *ab initio* calculation; dipole moments; electronic structure; potential energy curves; spectroscopic constants.

