Efficient organometallic spin filter between single-wall carbon nanotube or graphene electrodes - DTU Orbit (19/01/2019)

Efficient organometallic spin filter between single-wall carbon nanotube or graphene electrodes

We present a theoretical study of spin transport in a class of molecular systems consisting of an organometallic benzene-vanadium cluster placed in between graphene or single-wall carbon-nanotube-model contacts. Ab initio modeling is performed by combining spin density functional theory and nonequilibrium Green's function techniques. We consider weak and strong cluster-contact bonds. Depending on the bonding we find from 73% (strong bonds) up to 99% (weak bonds) spin polarization of the electron transmission, and enhanced polarization with increased cluster length.

General information
State: Published
Organisations: Theoretical Nanotechnology, Department of Micro- and Nanotechnology, Theoretical Nanoelectronics Group, Theory Section
Contributors: Koleini, M., Paulsson, M., Brandbyge, M.
Pages: 197202
Publication date: 2007
Peer-reviewed: Yes

Publication information
Journal: Physical Review Letters
Volume: 98
Issue number: 19
ISSN (Print): 0031-9007
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 7.58 SJR 3.622 SNIP 2.464
Web of Science (2017): Impact factor 8.839
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 6.33 SJR 4.196 SNIP 2.61
Web of Science (2016): Impact factor 8.462
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 5.76 SJR 4.656 SNIP 2.538
Web of Science (2015): Impact factor 7.645
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 6.62 SJR 5.232 SNIP 2.71
Web of Science (2014): Impact factor 7.512
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 7.46 SJR 5.675 SNIP 2.781
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 7.19 SJR 6.292 SNIP 2.867
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 7.02 SJR 6.314 SNIP 2.905
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2