Thermopower switching by magnetic field: first-principles calculations

We present first-principles studies of the thermopower of the organometallic V₄B₅ molecule attached between Co electrodes with noncollinear magnetization directions. Different regimes in the formation of the noncollinear magnetic state of the molecule lead to a remarkable nonmonotonous dependence of the thermopower on the angle between the magnetizations of the electrodes. This complex behavior is explained by the resonant properties of the electron transmission. Consequently, the nanocontacts can be utilized for local heating or cooling controlled by the external magnetic field.

General information
State: Published
Organisations: Department of Micro- and Nanotechnology, Theoretical Nanoelectronics, National Academy of Sciences of Ukraine, Martin Luther University Halle-Wittenberg, Max Planck Institute
Contributors: Maslyuk, V. V., Achilles, S., Sandratskii, L., Brandbyge, M., Mertig, I.
Number of pages: 5
Publication date: 2013
Peer-reviewed: Yes

Publication information
Journal: Physical Review B
Volume: 88
Issue number: 8
Article number: 081403
ISSN (Print): 1098-0121
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.34 SJR 1.604 SNIP 1.04
Web of Science (2017): Impact factor 3.813
Web of Science (2017): Indexed yes
Scopus rating (2016): CiteScore 3.16 SJR 2.339 SNIP 1.151
Web of Science (2016): Impact factor 3.836
Web of Science (2016): Indexed yes
Scopus rating (2015): CiteScore 2.8 SJR 2.377 SNIP 1.13
Web of Science (2015): Impact factor 3.718
Web of Science (2015): Indexed yes
Scopus rating (2014): CiteScore 3.3 SJR 2.762 SNIP 1.316
Web of Science (2014): Impact factor 3.736
Web of Science (2014): Indexed yes
Scopus rating (2013): CiteScore 3.55 SJR 2.813 SNIP 1.326
Web of Science (2013): Impact factor 3.664
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Scopus rating (2012): CiteScore 3.57 SJR 3.173 SNIP 1.378
Web of Science (2012): Impact factor 3.767
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Scopus rating (2011): CiteScore 3.61 SJR 3.326 SNIP 1.423
Web of Science (2011): Impact factor 3.691
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Scopus rating (2010): SJR 3.318 SNIP 1.447
Web of Science (2010): Impact factor 3.774
Web of Science (2010): Indexed yes
Web of Science (2009): Indexed yes
Scopus rating (2008): SJR 2.923 SNIP 1.516
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 2.892 SNIP 1.588
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 2.62 SNIP 1.468
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 2.126 SNIP 1.156
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 2.012 SNIP 1.103
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 2.184 SNIP 1.179
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 2.856 SNIP 1.841
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.132 SNIP 1.727
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 2.84 SNIP 1.603
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 2.789 SNIP 1.541
Original language: English
DOIs:
10.1103/PhysRevB.88.081403
Source: dtu
Source-ID: n:oai:DTIC-ART:inspec/391034894::31434
Research output: Research - peer-review ; Journal article – Annual report year: 2013