



请输入关键字



[首页](#) [学院概况](#) [组织机构](#) [师资队伍](#) [人才培养](#) [学科建设](#) [科学研究](#) [招生招聘](#) [党建之窗](#) [工会](#) [学生园地](#) [校友天地](#) [社会服务](#) [下载专区](#) [ENGLISH](#)



在职人员

教授/研究员

[位置: 师资队伍 > 在职人员 > 教授/研究员](#)

张东波

发布时间: 2018-03-20 浏览次数: 7251

张东波 教授

通信地址: 北京市新街口外大街19号 北京师范大学核科学与技术学院

邮 编: 100875





E-mail: dbzhang@bnu.edu.cn

张东波，2010年毕业于美国明尼苏达大学，获博士学位。国家级人才计划入选者。2018年初，在北京师范大学核科学与技术学院任职教授。他的主要研究领域是计算凝聚态物理，并近期侧重于核材料相关体系的理论研究。他曾发展出广义布洛赫方法、第一性原理声子准粒子方法、以及量子力学格林-久保方法等。

五篇代表性论文 [*通讯作者]

- X.-J. Zhao, Yang Yang, **Dong-Bo Zhang*** and S.-H. Wei*, Formation of Bloch Flat Bands in Polar Twisted Bilayers without Magic Angles, Physical Review Letters, **124**, 086401 (2020).
- **Dong-Bo Zhang***, X.-J. Zhao, G. Seifert, K. Tse, and J. Zhu*, Shear-Driven Separation of n-type and p-type Dopants in Single Crystalline Nanowires, National Science Review **6**, 532 (2019)
- Y. Lu, T. Sun, Ping Zhang, P. Zhang, **Dong-Bo Zhang,*** and R. M. Wentzcovitch, Pre-melting hcp to bcc Transition in Beryllium, Physical Review Letters **118**, 145702 (2017).
- **Dong-Bo Zhang**, T. Sun and R.M. Wentzcovitch, Phonon Quasiparticles and Anharmonic Free Energy in Complex Systems, Physical Review Letters **112**, 058501 (2014).
- **Dong-Bo Zhang**, G. Seifert and Kai Chang, Strain-Induced Pseudo-Magnetic Fields in Twisted Graphene Nanoribbons, Physical Review Letters **112**, 096805 (2014).

其它五篇重要论文 [*通讯作者]

- **Dong-Bo Zhang**, T. Dumitrica and G. Seifert, Helical Nanotube Structures of MoS₂ with Intrinsic Twisting: An Objective Molecular Dynamics Study, Physical Review Letters **104**, 065502 (2010).

- **Dong-Bo Zhang**, E. Akatyeva, and T. Dumitrica, Bending Ultra-Thin Graphene at the Margins of Continuum Mechanics, *Physical Review Letters* **106**, 255503 (2011).
- **Dong-Bo Zhang** and T. Dumitrica, Effective Strain in Helical Rippled Carbon Nanotubes: A Unifying Concept for Understanding Electromechanical Response, *ACS Nano*, **4**, 6966 (2010).
- **Dong-Bo Zhang**, P. B. Allen, T. Sun and R. M. Wentzcovitch, Thermal Conductivity of MgSiO_3 with Sublattice Mean Free Path, *Physical Review B (RC)*, **96**, 100302 (2017).
- **Dong-Bo Zhang*** and Su-Huai Wei*, Realizing Half-Metallicity in Zigzag Graphene Nanoribbon by Bending: A Mechanism Studied by Generalized Bloch Theorem, *npj Computational Materials* **3**, 32 (2017).

研究领域

- 计算凝聚态物理，计算材料学
- 材料结构、电、声子及输运性质计算
- 核材料、复合材料、低维材料

计算方法与计算软件

1. 广义布洛赫能带计算方法
2. 第一性原理声子准粒子计算方法
3. 量子力学Green-Kubo热导率计算方法
4. 固态材料Slater-Koster紧束缚排斥项参数的可程序化计算方法
5. 晶格失配下复合晶体体系电子、声子计算方法

荣誉和奖励

- 2002年，北京市优秀毕业生
- 2014年，海外高层次人才计划
- 2017年，研究课题“晶格失配复合材料电子能带计算方法及应用”获得“博士后创新人才计划”支持（2017-2019，赵兴举博士后）



课题经费/基金

- 2014—2017, 海外高层次人才计划 (300万人民币)
- 2017—2020, 基金委面上项目“低维材料电子性质的应变调控: 自洽密度泛函紧束缚广义布洛赫方法”(负责)
- 2017—2022, 科技部重点专项“低维固态极性结构中量子态调控及其原型器件研究”(参与)
- 2017—2019, 赵兴举, 博士后创新人才计划(60万)(指导老师)
- 2018—2023, 北京师范大学引进人才启动经费, “极端条件下主要核材料的热力学及热输运计算研究”(300万, 负责)
- 2019—2023, 基金委面上项目“固态材料晶格热导率计算: 基于Slater-Koster原子轨道表象的量子力学格林-久保方法”(负责)

课题组成员

- 博士后: 赵兴举(郑州大学)
- 博士生: 刘钊(2016—)、史金磊(2017—)
- 硕士生: 李建高(2018—)、王雅翼(2019—)何超(2019—)
- 本科生: 唐锦琨(2018—)等
- 访问学生: 张桢(美国哥伦比亚大学, 2018年1月—9月)

毕业学生/出站博士后/访问人员

- 赵荟艳(博士后, 出站时间2015), 河北师范大学物理学院副教授
- 鲁勇(博士后, 出站时间2016), 北京化工大学物理系讲师
- 任迎辉(博士后, 出站时间2017), 台湾
- 刘卯鑫(博士后, 出站时间2018), 北京邮电大学讲师
- 宋宏权(访问人员), 周口师范学院副教授
- 李进春(博士后, 出站时间2018), 北京

访问教授

- Renata. M. Wentzcovitch (2016年9月29日—12月2日), Professor, Columbia University Department of Applied Physics and Applied Mathematics.

- Gotthard Seifert (2015年11月1日—6日), Professor, Theoretische Chemie, Technische Universität Dresden, Germany

其他

- APS, AIP, ACS, IOP等系列杂志审稿人。

论文目录

期刊论文

[*]通讯作者

1. Xing-Ju Zhao, **Dong-Bo Zhang*** and Su-Huai Wei*, Graphene Membrane as Molecular Filters (in preparation, 2019)
2. Jin-Lei Shi, Xing-Ju Zhao, **Dong-Bo Zhang***, Pure Bending in Two Dimensions Towards Robust Flexible Electronics (in preparation, 2019).
3. J.-L. Shi, X.-J. Zhao, G. Seifert, S.-H. Wei, D.-B. Zhang, Unusual deformation potential and half-metallicity in Maxene nanoribbons, Physical Chemistry Chemical Physics (under review)
4. Zhao Liu, **Dong-Bo Zhang***, Xu-Wen Fu*, Dapeng Yu, and Wanlin Guo*, Indirect Exciton in Bent ZnO Nanowire (under review, 2019)
5. X.-J. Zhao, Yang Yang, **Dong-Bo Zhang*** and Su-Huai Wei*, Formation of Bloch Flat Bands in Polar Twisted Bilayers without Magic Angles, Physical Review Letters, **124**, 086401 (2020)
6. Zhao Liu, Chi-Yung Yam, Shiwu Gao*, Tao Sun, and **Dong-Bo Zhang***, Lattice Dynamics of Deformed Quasi-One Dimensional Crystals under Generalized Born-von Karman Boundary Conditions, New Journal Physics 22, 023004 (2020).
7. X.-J. Zhao, G. Seifert, J. Zhu* and **D.-B. Zhang***, Twist-induced preferential distribution of dopants in single-crystalline Si nanowires, Phys. Rev. B **100**, 174202 (2019)
8. Zhen Zhang, **Dong-Bo Zhang***, Tao Sun, and Renata M. Wentzcovitch*, phq: a Fortran code to compute phonon quasiparticle properties and dispersions, Computer Physics Communications **243**, 110 (2019).
9. Yong Lu*, Fa-wei Zheng, Yu Wang, Ping Zhang, and **Dong-Bo Zhang***, Phase Stabilities of Cmcm and Pnma SnSe Studied by Phonon Quasiparticle Approach, Physical Review B **100**, 054304 (2019).

10. Zhao Liu, **Dong-Bo Zhang***, Gotthard Seifert, Ying Liu and Kai Chang*, Interfacial Landau levels in Bent Graphene Racetracks, *Physical Review B* **99**, 165416 (2019)
11. Hong-Quan Song, Zhao Liu and **Dong-Bo Zhang***, Interlayer Vibration of Twisted Bilayer Graphene: A First-Principles Study, *Physics Letters A* **383**, 2628 (2019)
12. **Dong-Bo Zhang***, Xing-Ju Zhao, Gotthard Seifert, Kaifai Tse, and Junyi Zhu*, Shear-Driven Separation of n-type and p-type Dopants in Single Crystalline Nanowires, *National Science Review* **6**, 532 (2019) See also "A new strategy of fabricating p-n junction in single crystalline Si nanowires, twisting" at https://www.eurekalert.org/pub_releases/2019-03/scp-ans032019.php "PN 结 的 长 生 之 道 " at https://sciencesources.eurekalert.org/pub_releases_ml/2019-03/scp-u032019.php.
13. Yong Lu, Tao Sun, and **Dong-Bo Zhang***, Lattice Anharmonicity, Phonon Dispersion, and Thermal Conductivity of PbTe Studied by the Phonon Quasiparticle Approach, *Physical Review B* **97**, 174304 (2018).
14. **Dong-Bo Zhang**, P. B. Allen, T. Sun and R. M. Wentzcovitch, Thermal Conductivity of MgSiO₃ with Sublattice Mean Free Path, *Physical Review B* [Rapid Communication], **96**, 100302 (2017).
15. Yue Ling, Gotthard Seifert, Kai Chang and **Dong-Bo Zhang***, Effective Zeeman Splitting in Bent Graphene/Hexagonal Boron Nitride Lateral Heterojunctions: A New Mechanism towards Half-Metallicity, *Physical Review B* [Rapid Communication], **96**, 201403 (2017).
16. **Dong-Bo Zhang*** and Su-Huai Wei*, Realizing Half-Metallicity in Zigzag Graphene Nanoribbon by Bending: A Mechanism Studied by Generalized Bloch Theorem, *npj Computational Materials* **3**, 32 (2017).
17. N. Ghaderi, **Dong-Bo Zhang**, H. Zhang, J. Xian, R. Wentzcovitch, and T. Sun, Lattice Thermal Conductivity of MgSiO₃ Perovskite from First Principles, *Scientific Reports*, **7**, 5417(2017).
18. Y. Lu, T. Sun, Ping Zhang, P. Zhang, **Dong-Bo Zhang***, and R. M. Wentzcovitch, Pre-melting hcp to bcc Transition in Beryllium, *Physical Review Letters* **118**, 145702 (2017).
19. Y. Lu, F. Zheng, P. Zhang, X. Shao, and **Dong-Bo Zhang**, Temperature and isotope effects on the thermoelectric properties in SnTe, *Journal of Physics: Condensed Matter*, **29**, 175701 (2017).

20. Jiang Zeng, Wei Chen, Ping Cui, **Dong-Bo Zhang,*** and Zhenyu Zhang*, Enhanced Half-Metallicity in Orientationally Misaligned Graphene/Hexagonal BoronNitride Lateral Heterojunctions, *Physical Review B* **94**, 235425 (2016).
21. Hong-Man Ma, Jing Wang, Hui-Yan Zhao, **Dong-Bo Zhang**, Ying Liu, Structural prediction for scandium carbide monolayer sheet, *Chemical Physics Letters* **660** 238 (2016).
22. Dong Zhang, **Dong-Bo Zhang***, Fuhua Yang, Hai-Qing Lin, Hongqi Xu and Kai Chang*, Interface engineering of electronic properties of graphene/boron nitride lateral heterostructures, *2D Materials* **2**, 041001 (2015).
23. Hui-Yan Zhao, Jing Wang, Xiu-Jie Su, **Dong-Bo Zhang**, and Ying Liu, Ice Carbons, *Journal of Physical Chemistry C* **118**, 27502 (2014).
24. **Dong-Bo Zhang**, T. Sun and R.M. Wentzcovitch, Phonon Quasiparticles and Anharmonic Free Energy in Complex Systems, *Physical Review Letters* **112**, 058501 (2014).
25. **Dong-Bo Zhang**, G. Seifert and Kai Chang, Strain-Induced Pseudo-Magnetic Fields in Twisted Graphene Nanoribbons, *Physical Review Letters*, **112**, 096805 (2014).
26. Sun, Tao, **Dong-Bo Zhang**, and Renata M. Wentzcovitch. 2014. Dynamic stabilization of cubic CaSiO₃ perovskite at high temperatures and pressures from ab initio molecular dynamics, *Physical Review B* **89**, 094109 (2014).
27. **Dong-Bo Zhang** and T. Dumitrica, Role of effective tensile strain in electromechanical response of helical graphene nanoribbons with open and closed armchair edges, *Physical Review B* **85**, 035445 (2012).
28. L. Hale, **Dong-Bo Zhang**, X. Zhou, J.A. Zimmerman, N.R. Moody, T. Dumitrica, R. Ballarini, and W.W. Gerberich, Dislocation Morphology and Nucleation Within MD Compressed Si Nanospheres, *Computational Materials Science* **54**, 280 (2012).
29. A. Mittal, **Dong-Bo Zhang**, C. Teresi, A. Mkhoyan, and T. Dumitrica, Routes to identification of intrinsic twist in helical MoS₂ nanotubes by electron diffraction and annular dark-field scanning transmission electron microscopy imaging, *Physical Review B* **84**, 153401 (2011).
30. **Dong-Bo Zhang**, E. Akatyeva, and T. Dumitrica, Single Walled BN and ZnO Nanotubes with Intrinsic Twist: An Objective Molecular Dynamics Study, *Physical Review B* **106**, 255503 (2011).



31. **Dong-Bo Zhang**, E. Akatyeva, and T. Dumitrica, Bending Ultra-Thin Graphene at the Margins of Continuum Mechanics, *Physical Review Letters* **106**, 255503 (2011).
32. **Dong-Bo Zhang** and T. Dumitrica, An Effective Tensional Strain View on the Bandgap Tunability of Helical Graphene Nanoribbons with Open and Closed Edges, *Small* **7**, 1023 (2011).
33. **Dong-Bo Zhang** and T. Dumitrica, The Role of Peierls-Like Distortions in the Modification of Electronic Bandgaps of Graphene Nanoribbons Under Strain, *Journal of Chemical Physics*, **134**, 196101 (2011).
34. D. Teich, T. Lorenz, J. Joswig, G. Seifert, **Dong-Bo Zhang** and T. Dumitrica, Intrinsic Twist in Helical TiS₂ Nanotubes Studied with Objective Molecular Dynamics, *Journal of Physical Chemistry C* **115**, 6392 (2011).
35. I. Nikiforov, **Dong-Bo Zhang** and T. Dumitrica, Screw Dislocations in <100>Silicon Nanowires: An Objective Molecular Dynamics Study, *Journal of Physical Chemistry Letters*, **2**, 2544 (2011).
36. **Dong-Bo Zhang** and T. Dumitrica, Effective Strain in Helical Rippled Carbon Nanotubes: A Unifying Concept for Understanding Electromechanical Response, *ACS Nano*, **4**, 6966 (2010).
37. **Dong-Bo Zhang**, T. Dumitrica and G. Seifert, Helical Nanotube Structures of MoS₂ with Intrinsic Twisting: An Objective Molecular Dynamics Study, *Physical Review Letters* **104**, 065502 (2010).
38. I. Nikiforov, **Dong-Bo Zhang**, R.D. James, and T. Dumitrica, Wavelike rippling in multiwalled carbon nanotubes under pure bending, *Applied Physics Letters* **96**, 123107 (2010).
39. **Dong-Bo Zhang** and T. Dumitrica, Modulating the optical and electronic properties of highly symmetric Si quantum dots, *Nanotechnology* **20**, 445401 (2009).
40. **Dong-Bo Zhang**, R.D. James, and T. Dumitrica, Electromechanical characterization of carbon nanotubes in torsion via symmetry adapted tight-binding objective molecular dynamics, *Physical Review B* **80**, 115418 (2009).
41. **Dong-Bo Zhang** and T. Dumitrica, Elasticity of Ideal Single-Walled Carbon Nanotubes via Symmetry-Adapted Tight-Binding Objective Modeling, *Applied Physics Letters* **93**, 031919 (2008).

42. **Dong-Bo Zhang**, R.D. James, and T. Dumitrica, Dislocation onset and nearly axial glide in carbon nanotubes under torsion, *Journal of Chemical Physics [Communication]* **130**, 071101 (2009).
43. **Dong-Bo Zhang**, M. Hua, and T. Dumitrica, Stability of Polycrystalline and Wurtzite Si Nanowires via Symmetry-Adapted Tight-Binding Objective Molecular Dynamics, *Journal of Chemical Physics* **128**, 084104 (2008).
44. S.G. Hao, **Dong-Bo Zhang**, and T. Dumitrica, Effect of Small Shape Changes on the Optical Response of Highly Symmetric Silicon Quantum Dots, *Physical Review B [Rapid Comm.]* **76**, 081305 (2007).
45. **Dong-Bo Zhang*** and J. Shen, Ground state, growth, and electronic properties of small lanthanum clusters, *Journal of Chemical Physics* **120**, 5104 (2004).
46. **Dong-Bo Zhang***, J. Shen, and N.-X. Chen, Continuation calculations of boron- (aluminum-, titanium-, and nickel-) doped La_{13} clusters, *Journal of Chemical Physics* **123**, 154313 (2005).
47. **Dong-Bo Zhang*** and J. Shen, First principles study of the stability and electronic structure of the icosahedral La_{13} , La^{-1}_{13} , and La^{+1}_{13} clusters, *Journal of Chemical Physics* **120**, 5081 (2004).
48. **Dong-Bo Zhang***, J. Shen, and N.-X. Chen, First principles study of the carbon- (silicon-) doped La_{13} clusters, *Journal of Chemical Physics* **122**, 114305 (2005).



