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TEACHING EXPERIENCE

Peng Zhang has worked in School of Space Science and Physics, Shandong University, Weihai from 2003. He gained his Professor position from 2013. His teaching courses are 'Solid State Physics', 'Computational Materials Science', 'Group Theory', and so on.

RESEARCH INTERESTS

His main research interests are dynamic process of hydrogen bonds in water and ice. In his Ph.D project, he has performed inelastic neutron scattering experiments at ISIS, Rutherford-Appleton Labrotary, UK to investigate the interactions between water and amino acids. Later, he was interested in first-principles DFT simulations on the vibrational spectrum and normal modes analysis of different ice phases. Recently, he focuses on new de-icing method by terahertz radiation.

EDUCATION BACKGROUND

He received his Bachelor degree in 1993 and received Doctoral degree in 2006 from Shandong University at Jinan. From Oct. to Dec. in 2006, he visited Washington University at St Louis. Form 2009 to 2010, he worked as a postdoctoral scholar at the University of Manchester.

CURRENTLY SUPPORTED RESEARCH PROJECTS

1. **"Study on scientific research training of undergraduate students major in physics", 2018-2021, Department of Education of Shandong Province, Grant No. Z2018B110**

2. **“Study of innovative personnel training mode in basic subject”, 2019-2021, Shandong Univ., Grant No. Z2019010**

PUBLICATIONS (ORCID link):

46. Density functional theory studies of hydrogen bonding vibrations in sI gas hydrates
Hao-Cheng Wang, Xu-Liang Zhu, Jing-Wen Cao, Xiao-Ling Qin, Ye-Chen Yang, Tian-Xiao Niu, Ying-Bo Lu, Peng Zhang*, New J. Phys., 22, 093066 (2020).

45. Origin of two distinct peaks of ice in the THz region and its application for gas hydrate dissociation
Xu-Liang Zhu, Jing-Wen Cao, Xiao-Ling Qin, Lu Jiang, Yue Gu, Hao-Cheng Wang, Yang Liu, A. I. Kolesnikov, Peng Zhang*, J. Phys. Chem. C, 124, 1165-1170 (2020).

44. Computing investigations of molecular and atomic vibrations of ice IX
Zeng-Ji Zhao, Xiao-Ling Qin, Jing-Wen Cao, Xu-Liang Zhu, Yechen Yang, Hao-Cheng Wang, Peng Zhang*, ACS Omega, 4, 18936-18941 (2019).

43. Two basic vibrational modes of hydrogen bonds in ice XIII
Zhi-Wei Wei, Xu-Liang Zhu, Jing-Wen Cao, Xiao-Ling Qin, Lu Jiang, Yue Gu, Hao-Cheng Wang, Peng Zhang*, AIP Adv., 9, 115118-7 (2019).

42. DFT investigations of the vibrational spectra and translational modes of ice II
Jing-Wen Cao, Jia-Yi Chen, Xiao-Ling Qin, Xu-Liang Zhu, Lu Jiang, Yue Gu, Xu-Hao Yu, Peng Zhang*, Molecules, 24, 3135 (2019).

41. Computational analysis of exotic molecular and atomic vibrations in ice XV
Xiao-Ling Qin, Xu-Liang Zhu, Jing-Wen Cao, Lu Jiang, Yue Gu, Xue-Chun Wang, Peng Zhang*, Molecules, 24, 3115 (2019).

40. Comparative analysis of hydrogen bond vibrations in ice VIII and VII
Yue Gu, Xu-Liang Zhu, Lu Jiang, Jing-Wen Cao, Xiao-Ling Qin, Shu-Kai Yao, Peng Zhang*, J. Phys. Chem. C, 123, 14880-14883 (2019).

39. Computational analysis of vibrational spectrum and hydrogen bonds of ice XVII
Xu-Liang Zhu, Zhen-Yu Yuan, Lu Jiang, Kai Zhang, Ze-Ren Wang, Hui-Wen Luo, Yue Gu, Jing-Wen Cao, Xiao-Ling Qin, Peng Zhang*, New J. Phys., 21, 043054-8 (2019).

38. Investigations of the hydrogen bonds and vibrational spectrum of clathrate ice XVI
Ze-Ren Wang, Xu-Liang Zhu, Lu Jiang, Kai Zhang, Hui-Wen Luo, Yue Gu, Peng Zhang*, Materials, 12, 246-8 (2019).

37. Exotic spectra and lattice vibrations of ice X using the DFT method
Lu Jiang, Shu-Kai Yao, Kai Zhang, Ze-Ren Wang, Hui-Wen Luo, Xu-Liang Zhu, Yue Gu, Peng Zhang*, Molecules, 23, 2780-6 (2018).

36. DFT simulations of the vibrational spectrum and hydrogen bonds of ice XIV
Kai Zhang, Peng Zhang*, Ze-Ren Wang, Xu-Liang Zhu, Ying-Bo Lu, Cheng-Bo Guan, YanHui Li, Molecules, 23, 1781-10 (2018).

35. Investigation on enhanced moisture resistance of two-dimensional layered hybrid organic-inorganic perovskites (C4H9NH3) PbI4
Ying-Bo Lu, ChengBo Guan, Hui Sun, Wei-Yan Cong, Haozhi Yang, Peng Zhang, J.

Phys. Chem. C 122, 11862-8 (2018).

34. First principle study of electronic structures and optical properties of Ce-doped SiO2

Wei-Yan Cong, Ying-Bo Lu, Peng Zhang, Cheng-Bo Guan, AIP Advances 8, 055125-6 (2018).

33. Temperature dependence of the effective mass of the hybrid organic-inorganic perovskites CH3NH3PbI3

Ying-Bo Lu, Haozhi Yang, Wei-Yan Cong, Peng Zhang, and Hong Guo, Appl. Phys. Lett. 111, 253902 (2017).

32. Computational assignments of lattice vibrations of ice Ic

Zhen-Yu Yuan, Peng Zhang*, Shu-Kai Yao, Ying-Bo Lu, Hao-Zhi Yang, Hui-Wen Luo, Zeng-Ji Zhao, RSC Adv., 7, 36801-36806 (2017).

31. Computing analysis of lattice vibrations of ice Ⅷ

Shu-kai Yao, Peng Zhang*, Ying Zhang, Ying-bo Lu, Tian-lin Yang, Bai-gong Sun, Zhen-yu Yuan, Hui-wen Luo, RSC Adv., 7, 31789-31794 (2017).

30. Computational prediction of high thermoelectric performance in p-type half-Heusler compounds with low band effective mass

Teng Fang, Shuqi Zheng, Tian Zhou, Lei Yan, and Peng Zhang, Phys. Chem. Chem, Phys., 19, 4411-4417 (2017).

29. The normal modes of lattice vibrations of ice XI

Peng Zhang*, Zhe Wang, Ying-Bo Lu, Zheng-Wen Ding, Sci. Rep. 6, 29273-9 (2016).

28. Validity of Rigid-Band Approximation in the study of thermoelectric properties of p-Type FeNbSb-Based Half-Heusler compounds

Teng Fang, Shuqi Zheng, Tian Zhou, Hong Chen, and Peng Zhang, J. Electron. Mater, 46, 3030-3035 (2016).

27. Electronic structure and thermoelectric properties of p-type half-Heusler compound NbFeSb: a first-principles study

Teng Fang, Shuqi Zheng, Hong Chen, Hui Cheng, Lijun Wang and Peng Zhang, RSC Adv. 6, 10507-10512 (2016).

26. Geometric, electronic and optical properties of Zinc/Tin codoped In2O3 modulated by the bixbyite/corundum phase transition

Yingbo Lu, Y H Li, Z C Ling, Wei-Yan Cong, Peng Zhang, Y Q Xin, T L Yang, J. Phys. D. 49, 06515-8 (2016).

25. Elastic and thermodynamic properties of Fe3Ga from first-principles calculations

Ya-Ning Lin, Lin-Ling Li, Xiang-Hong Yan, Ya-Ping Zhang, Dong-Yun Zhang, Peng Zhang, Solid State Communications 230, 43-48, (2016).

24. Magnetism tuned by the charge states of defects in bulk C-doped SnO2 materials

Ying-Bo Lu, Z. C. Ling, Wei-Yan Cong, Peng Zhang, Phys. Chem. Chem, Phys. 17, 26429-26434 (2015).

23. Carbon induced magnetism of SnO2 surfaces

Ying-Bo Lu, Z. C. Ling, Wei-Yan Cong, Peng Zhang, Ying Dai, J. Magn. Magn. Mater. 394, 280-286 (2015).

22. How does the multiple constituent affect the carrier generation and charge transport in multicomponent TCOs of In-Zn-Sn oxide

Ying-Bo Lu, T. L. Yang, Z. C. Ling, Wei-Yan Cong, Peng Zhang, Y. H. Li and Y. Q. Xin, J. Mater. Chem. C 3, 7727-7737 (2015).

21. New observations on hydrogen bonding in ice by density functional theory simulations

Zhang Peng*, Liu Yang, Yu Hui, Han Sheng-Hao, Lv Ying-Bo, Lv Mao-Shui, Cong Wei-Yan, Chin. Phys. B 23, 026103-4 (2014).

20. Dynamics simulation of the interaction between serine and water

Yang Liu, Peng Zhang*, Ying-Bo Lu, Sheng-Hao Han, Hui Yu, J. Chem. Phys. 138, 205101-5 (2013).

19. A calculating proof on hydrogen bonding in ordinary ice by the first-principles density functional theory

Peng Zhang*, Sheng-Hao Han, Hui Yu, Yang Liu, RSC Adv. 3, 6646-6649 (2013).

18. Investigation of the hydrogen bonding in ice Ih by the first-principles density function methods

P. Zhang, L. Tian, Z. P. Zhang, G. Shao and J. C. Li, J. Chem. Phys. 137, 044504-5 (2012).

17. Neutron spectroscopic and Raman studies of interaction between water and proline

Peng Zhang, Shenghao Han, Ying Zhang, Robert C. Ford and Jichen Li, Chem. Phys. 345, 196-199 (2008).

16. Internal transitions of acceptors confined in delta-doped GaAs/AlAs multiple quantum wells

W. M. Zheng, A. F. Wang, Y. B. Lu, P. Zhang and D. Hong, Semicond. Sci. Technol. 22, 74-79 (2007).

15. Vibrational spectroscopic studies of the interaction of water with serine

Peng Zhang, Ying Zhang , Shenghao Han, Qiwei Yan , Robert C Ford and Jichen Li, J. Phys. Chem. A 110, 5000-5003 (2006).

14. The interaction of water with glycine: a combined Raman spectra and inelastic neutron scattering studies

P. Zhang, Y. Zhang，S. Han，Q. Yan, and J. Li, Acta Phys. Pol. A 109, 399-404 (2006).

13. Inelastic neutron scattering studies of the interaction between water and some amino acids

Ying Zhang, Peng Zhang, Robert C. Ford, Shenghao Han, and Jichen Li, J. Phys. Chem., B 109, 17784-17786 (2005).

12. Vibrational analysis of L-serine using the density functional theory

Zhang Ying, Yin Wen, Zhang Peng, Xu Chang-Ye, Han Sheng-Hao, and Li Ji-Chen, Chinese Phys. 14, 2585-2590 (2005).

11. Muon-spin-relaxation studies of high pressure phases of ices

Y. Wang, S.L. Dong, A.I. Kolesnikova, P. Zhang, J. C. Li, Physica B 350, e451-e454 (2004)

10. 有机衬底和玻璃衬底 ZnO:Al 透明导电膜的结构研究及光电特性对比研究

杨田林， 韩圣浩， 张鹏， 王爱芳，液晶与显示，19, 329-333 (2004)

9. 衬底温度和溅射偏压对 ZnO:Al 透明导电膜的结构研究及光电特性的影响

杨田林， 韩圣浩， 张鹏， 王爱芳，电子元件与材料，23, 31-34 (2004)

8. Defect hydrogen vibrations in various phases deuterium ice
J. C. Li and Y. Wang, S. L. Dong, P. Zhang, A. I. Kolesnikov, J. Chem. Phys. 119, 3332-3335 (2003).
7. Effective anisotropy and coercivity in nanocrystalline single-phase NdFeB permanent magnetic material
HAN Guangbing, GAO Ruwei, FENG Weicun, LIU Hangqiang, WANG Biao, ZHANG Peng, CHEN Wei, LI Wei, GUO Yongquan, Science in china (G) 46, 398-403 (2003)
6. 纳米单相 NdFeB 永磁材料的有效各向异性和矫顽力
韩广兵，高汝伟，冯维存，刘汉强，王标，张鹏，陈伟，李卫，郭永权，中国科学，33, 117-121 (2003)
5. 纳米复合永磁材料的有效各向异性与矫顽力
高汝伟，冯维存，王标，陈伟，韩广兵，张鹏，刘汉强，李卫，郭永权，李岫梅，物理学报，52, 703-707 (2003)
4. Exchange-coupling interaction, effective anisotropy and coercivity in nanocomposite permanent materials
R. W. Gao, W. C. Feng, H. Q. Liu, B. Wang, W. Chen, G. B. Han, P. Zhang, et al, J. Appl. Phys. 94, 664-668 (2003)
3. Influence of Co, Ga, and Si on the microstructure and the magnetic properties for nanocomposite permanent alloys
R. W. Gao, H. Q. Liu, W. C. Feng, W. Chen, B. Wang, G. B. Han, P. Zhang, Materials Science and Engineering B-Solid State Materials for Advanced Technology, 95 187-190 (2002).
2. Exchange-coupling interaction and effective anisotropy in nanocomposite permanent materials
GAO Ruwei, FENG Weicun, CHEN Wei, WANG Biao, HAN Guangbing & ZHANG Peng, Chinese Sci. Bull. 47, 1166-1169 (2002)
1. 纳米复合永磁材料的交换耦合作用与有效各向异性
高汝伟，冯维存，陈伟，王标，韩广兵，张鹏，科学通报，47, 829-832 (2002)