

Institute for Superconducting and Electronic Materials

2005 Refereed Publications

Journals

1. **S X Dou, S Soltanian, Y Zhao, E Getin, Z Chen, O Shcherbakova, J Horvat**, "The effect of nanoscale Fe doping on the superconducting properties of MgB_2 " *Superconductor Science and Technology*, 18 (2005) 710-715
2. **S X Dou, S Soltanian, W K Yeoh, Y Zhang**, "Effect of Nano-Particle Doping on the Upper Critical Field and Flux Pinning in MgB_2 ," *IEEE Transactions on Applied Superconductivity*, Vol 15 No 2, 3219-3222 (2005)
3. **F Gao, X L Wang, M M Farhoudi, R A Lewis**, "Infrared-Active Phonons of Perovskite $\text{HoMn}_{1-x}\text{Co}_x\text{O}_3$ ($x=0-0.8$)", *IEEE Transactions on Magnetics*, Vol 41 No 10, pp2763-2765, (2005)
4. **Z P Guo, Z W Zhao, H K Liu, S X Dou**, "Electrochemical lithiation and de-lithiation of MWNT-Sn/SnNi nanocomposites" *Carbon* 43, (2005) 1392-1399
5. **Z P Guo, E Milin, J Z Wang, J Chen and H K Liu**, "Silicon/Disordered Carbon Nanocomposites for Lithium-Ion Battery Anodes", *Journal of The Electrochemical Society*, Vol 152 No 11, pp2211-2216, (2005)
6. **Z P Guo, H Liu, S Bewlay, H K Liu, S X Dou**, "Fine-Particle Carbon-enriched $\text{Li}_{0.98}\text{Mg}_{0.02}\text{FePO}_4$ Synthesized by A Novel Modified Solid-State Reaction", *Synthetic Metals*, Vol 153, pp113-116, (2005)
7. **Z P Guo, Z W Zhao, H K Liu, S X Dou**, "Lithium insertion in Si-TiC nanocomposite materials produced by high-energy mechanical milling", *Journal of Power Sources*, Vol 146, pp190-194, (2005)
8. **Z P Guo, J Z Wang, H K Liu, S X Dou**, "Study of Silicon/polypyrrole composite as anode materials for Li-ion batteries", *Journal of Power Sources*, Vol 146, pp448-451, (2005)
9. **T E Humphrey, H Linke**, "Reversible Thermoelectric nanomaterials" *Physical Review Letters*, PRL 94, 096601 (2005)
10. **T E Humphrey, M F O'Dwyer, C Zhang, R A Lewis**, "Solid-state thermionics and thermoelectrics in the ballistic transport regime", *Journal of Applied Physics* 98, 026108 (2005)
11. **J Horvat, S Soltanian, W K Yeoh**, "The relevance of the self-field for the 'peak effect' in the transport $J_c(H)$ of iron-sheathed MgB_2 wires" *Superconductor Science and Technology* 18, 682-688, (2005)
12. **J Horvat, W K Yeoh, L M Miller**, "Interaction between superconductor and ferromagnetic domains in iron sheath: Peak effect in MgB_2/Fe wires, *Applied Physics Letters*, Vol 87 No 10, (2005)
13. **M James, K S Wallwork, R L Withers, D J Goossens, K F Wilson, J Horvat, X L Wang, M Colella**, "Structure and magnetism in the oxygen-deficient perovskites $\text{Ce}_{1-x}\text{Sr}_x\text{CoO}_{3-8}$ ($x>0.90$), *Materials Research Bulletin* 40 (2005) 1415-1431.
14. **A H Li, H K Liu, M Ionescu, X L Wang, S X Dou**, "Improvement of critical current density and thermally assisted individual vortex depinning in pulsed-laser-deposited $\text{YBa}_2\text{Cu}_3\text{O}_7$ - thin films on SrTiO_3 (100) substrate with surface modification by Ag nanodots" *Journal of Applied Physics* 97 10B 107-1-3 (2005) R.
15. **A H Li, M Ionescu, H K Liu, T Silver, X L Wang, S X Dou**, "Microstructures and Enhancement of Critical Current Density in $\text{YBa}_2\text{Cu}_3\text{O}_7$ Thin Films Grown by Pulsed Laser Deposition on Various Single Crystal substrates Modified by Ag Nano-Dots", *IEEE Transactions on Applied Superconductivity* Vol. 15 No. 2 pp. 3046 -3049 (2005)

16. **S H Ng, J Wang, Z P Guo, J Chen, G X Wang, H K Liu**, "Single wall carbon nanotube paper as anode for lithium-ion battery", *Electrochimica Acta*, Vol 51, pp23-28, (2005)
17. **M.F. O'Dwyer, T.E. Humphrey, R.A. Lewis and C. Zhang**, "Efficiency of Ideally Filtered Thermionic Devices", *Proceedings of 16th AIP Congress*, p. 180, CMMSP PTU121 (2005).
18. **M Roussel, A V Pan, A V Bobyl, Y Zhao, S X Dou, T H Johansen**, "Magnetic flux penetration in MgB₂ thin films produced by pulsed laser deposition", *Superconductor Science and Technology*, Vol 18, pp1391-1395, (2005)
19. **M Roussel, A V Pan, R Zeng, S X Dou**, "Influence of the final heat treatment on properties of Bi-22223 multifilamentary tapes", *Physica C*, Vol 425, pp135-143, (2005)
20. **D Q Shi, S X Dou, R K Ko, J K Chung, H S Kim, H S Ha, K J Song, C Park**, "YBCO coated conductor using biaxially textured clad composite Ni-Mn/Ni-Cr substrate", *Superconductor Science and Technology*, Vol 18, pp1405-1409, (2005)
21. **M D Sumption, M Bhatia, M Rindfleisch, M Tomsic, S Soltanian, S X Dou, E W Collings**, "Large upper critical field and irreversibility field in MgB₂ wires with SiC additions" *Applied Physics Letters*, **86**, pp.092507-1 to 092507 -3 (2005)
22. **S Soltanian, X L Wang, J Horvat, S X Dou, M D Sumption, M Bhatia, E W Collings, P Munroe, M Tomsic** "High transport critical current density and large H_{c2} and H_{irr} in nanoscale SiC doped MgB₂ wires sintered at low temperature" *Superconductor Science and Technology*, 18 658-666 (2005)
23. **X L Wang, Z W Lin, H W Lu, J G Zhu, J J Zhong, S Y Ding**, "Vector characterization of soft magnetic materials" *Journal of Applied Physics*, Vol 97, (2005)
24. **X L Wang, A H Li, S Yu, S Ooi, K Hirata, C T Lin, E W Collings, M D Sumption, M Bhatia, S Y Ding, S X Dou**, "Thermally assisted flux flow and individual vortex pinning in Bi₂Sr₂Ca₂Cu₃O₁₀ single crystals grown by the traveling solvent floating zone technique", *Journal of Applied Physics*, Vol 97, (2005)
25. **X L Wang, H Sakurai, E Takayama-Muromachi**, "Synthesis, structures, and magnetic properties of novel Ruddlesden-Popper homologous series Sr_{n+1}ConO_{3n+1} (n=1,2,3,4 and ∞)", *Journal of Applied Physics*, Vol 97, (2005)
26. **X L Wang, L Zhang, X B Xu, S Y Ding, M H Zheng, L Xiao, H T Ren, Y L Jiao, Z W Lin, J G Zhu**, "Effect of doping on flux pinning of GdBa₂Cu₃O_{7-y}, *Journal of Applied Physics*, Vol 97 (2005).
27. **X L Wang, E Takayama-Muromachi**, "Magnetic and transport properties of the layered perovskites system Sr_{2-y}Y_yCoO₄ (0≤y≤1)", *Physical Review*, Vol 72, (2005)
28. **X Y Xu, L Zhang, X Leng, S Y Ding, H K Liu, X L Wang, S X Dou, Z W Lin, J G Zhu** "Third harmonics due to surface barrier in high-temperature superconductor", *Journal of Applied Physics* 97, 10B105-1-3 (2005)
29. **W K Yeoh, J Horvat, S X Dou, P Munroe**, "Effect of Carbon Nanotube size on superconductivity Properties of MgB₂", *IEEE Transactions on Applied Superconductivity*, Vol.15 No 2 3284-3287 (2005)
30. **W K Yeoh, S Soltanian, J Horvat, S X Dou S K Chen, K S Tan, B A Glowacki**, "Effect of heating rates on superconducting properties of pure MgB₂, carbon nanotube- and nano-SiC-doped *in situ* MgB₂/Fe wires", *Applied Physics Letter*, Vol 87, (2005)
31. **C Zhang and S Hessami Pilehrood** "A new magnetoplasmon sound wave in a two-dimensional electron gas under electromagnetic radiation" *Europhysics Letters* **69** (4) pp 623-628 (2005)
32. **Y Zhao, M Ionescu, M Roussel, A V Pan, J Horvat, S X Dou**, "Superconducting and Microstructural Properties of two types of MgB₂ Films Prepared by Pulsed Laser Deposition" *IEEE Transactions on Applied Superconductivity*, Vol 15, No 2 3261-3264 (2005)

33. **Y Zhao, M Ionescu, J Horvat, S X Dou**, "Off-axis MgB₂ films using an in-situ annealing pulsed laser deposition method" *Superconductor Science and Technology*, 18 (2005) 395-399
34. **Z W Zhao, Z P Guo, H K Liu**, "Non-aqueous synthesis of crystalline Co₃O₄ powders using alcohol and cobalt chloride as a versatile reaction system for controllable morphology", *Journal of Power Sources*, Vol 147, pp264-268, (2005)
35. **C Zhang and Zhongshui Ma**, "Dynamic Hall resistivity of electronic systems in the presence of Rashba coupling at zero field" *Physical Review (The American Physical Society) B* **71** pp 121307–1 to121307-4 (2005)
36. **Chao Zhang, Tadashi Toyoda, Maho Fujita, Hideki Koizumi**, "Nonlinear response formula for an interacting two-dimensional electron gas under a magnetic field and microwave radiation" *Physical Review (The American Physical Review) B* **71**, pp 033313- 1 to 033313-4 (2005)

Book Chapters

37. **M J Qin and S X Dou**, "Superconductors, High T_c", (2005), in Bassani F, Liedl G L, Wyder P (eds) *Encyclopedia of Condensed Matter Physics*, Elsevier Academic Press, UK
38. **S X Dou, A V Pan, M J Qin, T Silver**, "Critical Current Density in Superconducting MgB₂", in Narlikar A V (eds), *Frontiers in Superconducting Materials*, pp1011-1048, Springer, US, (2005)
39. **D Milliken, T Silver, S X Dou**, "Irradiation of HTS for enhancement of critical current," in Narlikar A V (eds), *Frontiers in Superconducting Materials*, , pp554-588, Springer, US, (2005)

Conference Papers

40. **R E M Vickers, R., R A Lewis, P Fisher, and Y J Wang**, "Zeeman Spectra of Boron in Germanium at High Fields", *Proceedings of 16th AIP Congress*, P. 196, CMMSP PWE101 (2005)
41. **R A Lewis, R E M Vickers, C A Freeth**, "Mastering Physics?", *Proceedings of the Blended Learning in Science Teaching and Learning Symposium*, pp151-152, (2005)
42. **R A Lewis**, "Physics workshop tutorials: views of life-science students", *Proceedings of the Blended Learning in Science Teaching and Learning Symposium*, pp153-154, (2005)
43. **B C Lough, R. A. Lewis, and C. Zhang** , "Principles of charge and heat transport in thermionic devices", in *Smart Structures, Devices, and Systems II*, edited by Said F. Al-Sarawi, *Proceedings of SPIE Vol. 5649* (SPIE, Bellingham, WA, 2005) 332-343.
44. **R A Lewis, R.E.M. Vickers and M.L. Smith**, "A new THz facility for condensed matter physics", *Proceedings of 16th AIP Congress*, p. 178, CMMSP PTU112 (2005).
45. **R A Lewis, R.E.M. Vickers, H. Nakata and Y.-J. Wang**, "Spectroscopy of acceptor states in ZnSe", *Proceedings of 16th AIP Congress*, p. 178, CMMSP PTU113 (2005).
46. **R A Lewis and Y J Wang**, "Magnetospectroscopy of Zn-doped InP to 30T", *Proceedings of the 16th International Conference on High Magnetic Fields in Semiconductor Physics*, Tallahassee, Florida, USA, 2-6 August 2004.
47. **R A Lewis, R.E.M. Vickers and Y J Wang**, "Magnetospectroscopy to 18 T of phosphorous donor in silicon", *Proceedings of 16th AIP Congress*, p. 162, CMMSP TUC24 (2005). [missing from CD, on website]
48. **R A Lewis, Y.-J. Wang**, "Magneto-optical determination of the properties of hole states in polar semiconductors", *Physical Review B* 71, 115211 (2005).