

## CURRICULUM VITAE

### Joseph H. Ross, Jr.

#### Education:

Ph.D., Physics, University of Illinois at Urbana-Champaign, 1986.  
M.S., Physics, University of Illinois, 1982.  
B.S., Physics, Yale University, 1981.

#### Positions Held:

Professor, Department of Physics, Texas A&M University, 2004 to present.  
Chair, Materials Science and Engineering Program, Texas A&M University, 2003 to 2007  
Associate Professor, Department of Physics, Texas A&M University, 1994 to 2004.  
Assistant Professor, Department of Physics, Texas A&M University, 1988 to 1994.  
Postdoctoral Associate, Cornell University, 1986 to August 1988.

**Research:** Experimental solid state physics and materials research, focusing on magnetic resonance studies of solids, electronic materials, intermetallic metal alloys, semiconducting clathrates.

#### Publications last 10 years:

1. "Correlated Electron Behavior in  $Al_3V$ : NMR Evidence," Chin-Shan Lue and Joseph H. Ross, Jr., *Phys. Rev. B* **60**, 8533 (1999).
2. "Field-dependent specific heat in  $Fe_2VAl$  and the question of possible  $3d$  heavy fermion behavior," Chin-Shan Lue, Joseph H. Ross, Jr., C. F. Chang, and H. D. Yang, *Physical Review B Rapid Communications* **60**, 13941R (1999).
3. "NMR probe of pseudogap characteristics in  $Fe_{2+x}V_{1-x}Al$ ," C. S. Lue and Joseph H. Ross, Jr., *Phys. Rev. B* **61**, 9863 (2000).
4. "Low-Temperature MFM Studies of CMR Manganites," Guangming Xiao, Joseph H. Ross, Jr., Anastasios Parasiris, K. D. D. Rathnayaka, and D. G. Naugle, *Physica C* **341-348**, 769 (2000).
5. "Pseudogap in  $Fe_2VGa$ : NMR evidence," C. S. Lue and Joseph H. Ross, Jr., *Physical Review B* **63**, 054420 (2001).
6. "Superparamagnetism and Magnetic Defects in  $Fe_2VAl$  and  $Fe_2VGa$ ," C. S. Lue, Joseph H. Ross, Jr., K. D. D. Rathnayaka, D. G. Naugle, S. Y. Wu and W.-H. Li, *Journal of Physics-Condensed Matter* **13**, 1585 (2001).
7. "Spin glass behavior in  $FeAl_2$ ," C. S. Lue, Y. Öner, D. G. Naugle, and Joseph H. Ross, Jr., *Physical Review B* **63**, 184405 (2001).
8. "Thermo-magnetic hysteresis effects in NiMn and NiMnPd thin films," Y. Öner, C. S. Lue, Joseph H. Ross, Jr., K. D. D. Rathnayaka, and D. G. Naugle, *J. Appl. Phys* **89**, 7044 (2001).
9. "Magnetism of New Semi-Heusler Compounds  $FeVSn$  and  $CoVSn$ ," C. S. Lue, Y. Öner, D. G. Naugle, and Joseph H. Ross, Jr., *IEEE Trans. Magn.* **37**, 2138 (2001).
10. "Defect and pinning effect of Sn-doping on  $(La_{1-x}Sr_x)_2Cu_{1-x}Sn_xO_4$  superconductors, Yang Li, G. H. Cao, G. C. Che, Z. X. Zhao, J. H. Ross, Jr., and E. M. Baggio-Saitovitch, *Physica C* **382**, 243-250 (2002).

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11. "Superconductivity at 10 K in (Ge,Ba)-based compounds," Yang Li and Joseph H. Ross, Jr., IEEE Trans. Appl. Supercon **13**, 3047 (2003).
12. "Preparation and properties of (Y, Eu)-123 superconducting single crystals", Zhigang Yin, Yang Li, Xiaotao Xiong, Yang Liu, Guohui Cao and Joseph. H. Ross, Jr, Physica C **390**, 254 (2003).
13. "Structure and stability of Ba-Cu-Ge type-I clathrates," Yang Li, Ji Chi, Weiping Gou, Sameer Khandekar, and Joseph H. Ross, Jr., J. Phys. Condens. Matter **15**, 5535 (2003).
14. "NMR and Mössbauer study of spin dynamics and electronic structure of  $\text{Fe}_{2+x}\text{V}_{1-x}\text{Al}$  and  $\text{Fe}_2\text{VGa}$ ," C. S. Lue, Yang Li, Joseph H. Ross, Jr., and George M. Irwin, Phys. Rev. B **67**, 224425 (2003).
15. "A novel copper organophosphonate with a pore-like 3D framework and Cu-Cu magnetic ordering," Deyuan Kong, Yang Li, Joseph H. Ross, Jr., and Abraham Clearfield, Chem. Commun. **2003**, 1720 (2003).
16. "Structural, magnetic, and transport properties of  $\text{La}_{0.65}\text{Sr}_{0.35}\text{MnO}_3$  films grown under different substrate arrangements in the laser plume," B. I. Belevtsev, D. G. Naugle, K. D. D. Rathnayaka, I. N. Chukanova, J. H. Ross, Jr., and V. M. Ishchuk, Journal of Materials Research **18**, 2406 (2003).
17. "Ferromagnetism in Fe-doped  $\text{Ba}_6\text{Ge}_{25}$  Chiral Clathrate," Yang Li and Joseph H. Ross, Jr., Applied Physics Letters **83**, 2868 (2003).
18. "New Transition-Metal-Doped Germanium Clathrates," Yang Li, and Joseph H. Ross, Jr., Proc. Mater. Res. Soc. **793**, S7.3 (2004).
19. "Positron annihilation study of the O-T phase transition for  $\text{Eu}_{1+x}\text{Ba}_{2-x}\text{Cu}_3\text{O}_{7-\delta}$  superconductors," Yang Li, Yang Liu, Ruifei Duan, Xiaotao Xiong, Baoyi Wang, Guohui Cao, Long Wei, D. N. Zheng, Z. X. Zhao, and Joseph H. Ross Jr., Physica C **402**, 179 (2004).
20. "Flux pinning behavior and positron annihilation study on (Pb,Sn)-doped Bi-2212 superconductors," Yang Li, Zhigang Yin, Yao Wang, Guohui Cao, J. H. Ross, Jr., A. D. Caplin, G. Perkins, Baoyi Wang, and Long Wei, Proc. Mater. Res. Soc. **EXS-3**, 8.33.1 (2004).
21. "Study of superconducting Ba-Ge-Co compounds," Yang Li, J. H. Ross, Jr., J. A. Larrea and Elisa Baggio-Saitovitch, Physica C **408-410**, 869 (2004).
22. "Defective structure in the high- $T_c$  superconductor Hg-1234", Z. P. Luo, Yang Li, H. Hashimoto, H. Ihara, A. Iyo, K. Tokiwa, G. H. Cao, J. H. Ross, Jr., J. A. Larrea and E. Baggio-Saitovitch, Physica C **408-410**, 50 (2004).
23. "Supramolecular Copper Hydroxide Baseballs: Self-Assembly, Structures, and Magnetic Properties of Octanuclear  $[\text{Cu}_8\text{L}_8(\text{OH})_4]^{4+}$  Clusters (HL = *N*-(2-pyridinylmethyl)-acetamide)", Arunendu Mondal, Yang Li, Masood A. Khan, Joseph H. Ross, Jr., and Robert P. Houser, Inorganic Chemistry **43**, 7075 (2004).
24. "Syntheses, Structure, and Magnetic Properties of New Types of Cu(II), Co(II) and Mn(II) Organophosphonate Materials: Three-Dimensional Frameworks and a One-Dimensional Chain Motif," Deyuan Kong, Yang Li, Xiang Ouyang, Andrey V. Prosvirin, Hanhua Zhao, Joseph H. Ross Jr., Kim R. Dunbar, and Abraham Clearfield, Chem. Mater. **16**, 3020-3031 (2004).

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25. "NMR and Mössbauer study of FeAl<sub>2</sub>," Ji Chi, Yang Li, F. G. Vagizov, V. Goruganti, and Joseph H. Ross, Jr., *Phys. Rev. B* **71**, 024431 (2005).
26. "Magnetic entropy change of the layered perovskites La<sub>2-2x</sub>Sr<sub>1+2x</sub>Mn<sub>2</sub>O<sub>7</sub>," Aihua Wang, Guohui Cao, Yang Liu, Yi Long, Yang Li, Zhaosheng Feng and Joseph H. Ross, Jr., *J. Applied Physics* **97**, 103906 (2005).
27. "Transition-Metal Substitution in Semiconducting Ba<sub>8</sub>Ga<sub>16</sub>Ge<sub>30</sub> Clathrates," Yang Li, Weiping Gou, Ji Chi, Venkatesh Goruganti, and Joseph H. Ross, Jr., *AIP Conf. Proc.* **772**, 331 (2005).
28. "NMR Study of Slow Atomic Motion in Sr<sub>8</sub>Ga<sub>16</sub>Ge<sub>30</sub> Clathrate," Weiping Gou, Yang Li, Ji Chi, Joseph H. Ross, Jr., M. Beekman, and G. S. Nolas, *Phys. Rev. B* **71**, 174307 (2005).
29. "Vacancy and copper-doping effect on superconductivity for clathrate materials," Yang Li, Yang Liu, Ning Chen, Guohui Cao, Zhaosheng Feng and Joseph H. Ross, Jr., *Phys. Lett. A* **345**, 398 (2005).
30. "Magnetic Phase Transitions in Intermetallic CeCuGe Compound," Y. Oner, O. Kamer, Joseph H. Ross Jr, C. S. Lue, and Y. K. Kuo, *Solid State Commun.* **136**, 533 (2005).
31. "Thermomagnetic hysteresis and electrical transport in amorphous Ni<sub>74</sub>Mn<sub>24</sub>Pt<sub>2</sub> films," Y. Öner, O. Kamer, and Joseph H. Ross, Jr., *J. Magn. Magn. Mater.* **300**, 373 (2006).
32. "Magnetic phase transitions in intermetallic NdAgSi compound," Y. Öner, Joseph H. Ross Jr., O. Sologub, P. Salamakha, *J. Alloys and Compounds* **415**, 38 (2006)
33. "Magnetic and Thermodynamic Properties of Nd<sub>2</sub>Ni<sub>2</sub>Pb," V. Goruganti, Yang Li, Joseph H. Ross, Jr., K. D. D. Rathnayaka, and Y. Öner, *J. Appl. Phys.* **99**, 08P303 (2006).
34. "Bi-Sr-Ca-Cu-O superconducting thin films: theory and experiment," M. Yavuz, M. S. Boybay, C. Elbuken, M. J. Andrews, C. R. Hu, and J. H. Ross, *J. Phys.: Conf. Ser.* **43**, 277–280 (2006). doi:10.1088/1742-6596/43/1/069
35. "Effect of exchange bias on the electrical resistivity of Pd doped NiMn thin films: Two-Channel Kondo system," Y. Öner, O. Kamer, and Joseph H. Ross, Jr., *J. Appl. Phys.* **100**, 113910 (2006). doi:10.1063/1.2400094
36. "Superconductivity in gallium-substituted Ba<sub>8</sub>Si<sub>46</sub> clathrates," Yang Li, Ruihong Zhang, Yang Liu, Ning Chen, Z. P. Luo, Xingqiao Ma, Guohui Cao, Z. S. Feng, Chia-Ren Hu and Joseph H. Ross, Jr., *Phys. Rev. B* **75**, 054513 (2007).  
Also chosen for *Virtual Journal of Nanoscale Science and Technology* **15**, 9 (2007).
37. "Point-contact spectroscopy of the nickel borocarbide superconductors RNi<sub>2</sub>B<sub>2</sub>C (R = Y, Dy, Ho, Er, Tm, Lu)," Yu. G. Naidyuk, D. L. Bashlakov, N. L. Bobrov, V. N. Chernobay, O. E. Kvitnitskaya, I. K. Yanson, G. Behr, S.-L. Drechsler, G. Fuchs, D. Souptel, D. G. Naugle, K. D. D. Rathnayaka, J. H. Ross Jr., *Physica C* **460-462**, 107 (2007)
38. "Magnetic and electrical properties of NdNiSn," Y. Oner, O. Kamer, and Joseph H. Ross, Jr., *J. Alloys Compounds*, **460**, 69 (2008).
39. "Kondo lattice behavior and magnetic field effects in Al<sub>20</sub>V<sub>2</sub>Eu," Ji Chi, Yang Li, Weiping Gou, V. Goruganti, K. D. D. Rathnayaka, and Joseph H. Ross, Jr., *Physica B* **403**, 1426 (2008).
40. "Phase Transitions in NdNiPb and Nd<sub>5</sub>NiPb<sub>3</sub>," V. Goruganti, K. D. D. Rathnayaka, Joseph H. Ross, Jr., and Y. Öner, *J. Appl. Phys.*, **103**, 07B709 (2008).

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41. "Electrical Transport, Heat Capacity, and High-Field Magnetization Study in Intermetallic  $\text{Ni}_2\text{CeSn}$  Compound," Yildirhan Öner, V. Goruganti, O. Kamer, M. Guillot, and Joseph H. Ross, Jr, J. Appl. Phys. **103**, 07B915 (2008).
42. "Transport and magnetic properties of NdCuGe compound," V. Goruganti, K. D. D. Rathnayaka, Joseph H. Ross, Jr., Y. Öner, C. S. Lue, and Y. K. Kuo, J. Appl. Phys. **103**, 073919 (2008).
43. "Superconductivity and Magnetism in Silicon and Germanium Clathrates," Joseph H. Ross Jr. and Yang Li, in Nanoscale Magnetic Materials and Applications, edited by J. Ping Liu, Eric Fullerton, Oliver Gutfleisch, and David Sellmyer (Springer, New York, 2009), pp. 105-121.
44. "Magnetic phase transitions in  $R_5\text{NiPb}_3$  ( $R = \text{Ce}, \text{Nd}$  and  $\text{Gd}$ ), V. Goruganti, K. D. D. Rathnayaka, and Joseph H. Ross, Jr., J. Appl. Phys, **105**, 07E118 (2009).
45. "NMR and Electronic Structures in Type-I BaAlGe Clathrates", Weiping Gou, Sergio Rodriguez, Yang Li, and Joseph H. Ross, Jr., Phys. Rev. B **80**, 144108 (2009).
46. "NMR and Computational Studies of  $\text{Ba}_8\text{Ga}_{16}\text{Sn}_{30}$  Clathrates", Sergio Y. Rodriguez, Xiang Zheng, Laziz Saribaev, and Joseph H. Ross, Jr., Proc. Mater. Res. Soc. **1267**, DD04-07 (2010).
47. "Zintl behavior and vacancy formation in type-I Ba-Al-Ge clathrates", Sergio Y. Rodriguez, Laziz Saribaev, and Joseph H. Ross, Jr., Phys. Rev. B **82**, 064111 (2010).

### Patents:

1. "System and Method for Storing Information Using Nano-Pinned Dipole Magnetic Vortices in Superconducting Materials," M. J. Andrews, J. H. Ross, Jr., J. C. Slattery, M. Yavuz, A. Beskok, K.T. Hartwig, Jr., US Patent # 6,787,798, issued September 7, 2004.