

*CURRICULUM VITAE*

**September 21, 2006**

**Stewart Edward BARNES**

**HIGHER EDUCATION.**

Ph.D. Physics, University of California, Los Angeles, Dec. 1972

Thesis Advisor: Professor R. L. Orbach

B.Sc. Physics, Imperial College, University of London, June 1968

**ACADEMIC APPOINTMENTS.**

Assistant to Full Professor (1984) of Physics

University of Miami, Florida. August 1980-present

Chargé de Recherche

University of Geneva, Switzerland. October 1977-August 1980

Lecturer

Trinity College, University of Dublin, Ireland. October 1975-October 1977

Maître Assistant

University of Geneva, Switzerland. October 1974-October 1975

Research Fellow (with D. Thouless)

University of Birmingham, England. October 1972-October 1974

**CONCURRENT APPOINTMENTS (while at the University of Miami).**

University of Geneva, Switzerland. May-June 1981 and May-June 1987, academic year 1988-89,  
May-August 1991, June-July 1992, June-July 1993, December 1998.

Free University of Berlin, Germany. July-August 1981 and May-June 1982

IBM Research Center, Yorktown Heights, N.Y. May 1983, July 1984, August 1986 and May 1988

ETH, Zürich, May-June 1990, Jan.-March 1994

University of Cologne, July-August, 1992

University of Neuchatel, July, September 1993

University of Karlsruhe, October-November 1993

ILL, Grenoble, April-May 1994

Laboratoire Louis Néel (University of Grenoble ) June-August 1994, (CNRS) January-August 1996

Institute for Materials Research, Tohoku University, Japan, September 2000-March 2001, 29 June-14 July 2005

Distinguish Visiting Professor, International Frontier Center for Advanced Materials, Institute for Materials Research, Tohoku University, Japan, June-August 2002, July-October 2003, May-August 2004.

## **INVITED CONFERENCE CONTRIBUTIONS.**

### **Josephson Type Oscillations in a Moving Charge Density Wave.**

Gordon Conference “Quantum Solids and Fluids”, Brewster, N.H. August 1983.

### **ESR Spectroscopy in SNS Josephson Junctions.**

With K. D. Bures, K. Baberschke. Invited contribution to a discussion session at LT17, Karlsruhe 1984 (presented by K. D. Bures).

### **Microscopic Theory of Interaction of CDW with Impurities.**

With A. Zawadowski, I. Tutto, P.F. Tua and J. Ruvalds (presented by A. Zawadowski). CDW '84 conference, Budapest 1984.

### **Quantum Effects in the Josephson Approach to a CDW.**

Workshop following CDW '84 conference, Budapest 1984.

### **Basic theory for 2D-ACAR of positrons from superconductors.**

Third International Workshop on Positron and Positronium Chemistry, Milwaukee, July 16-18, 1990.

**Theory of positron annihilation in the spinon-holon picture**

Workshop on fermiology of high- $T_c$  superconductors, Argonne National Laboratory, March 25-27, 1991

**What can positrons contribute to high- $T_c$  superconductivity?**

With M. Peter, T. Jarlborg, A. A. Manuel, B. Barbiellini (presented by M. Peter), Sagamore conference on electron spin and momentum densities in solids, Konstanz, Germany, September 2-6, 1991

**Auxiliary Particle methods: the old fashioned and the new**

Eötvös Graduate School “Strongly Correlated Electron Systems and Low Dimensional Materials”, Budapest, Hungary, Aug. 25 -September 1, 1993

**Electronic structure of vortices in high  $T_c$  superconductors**

Second International Conference on New Theories, Discoveries, and Applications of Superconductors and Related Materials, to be held May 31 - June 4, 1999, Las Vegas, Nevada, USA

**Quantum Coherence and Tunneling in Nanomagnets.**

Institute of Theoretical Physics, Conference on Quantum Magnetism, Santa Barbara, California, August 16-20, 1999

**New approach to the theory of vortices in high- $T_c$  superconductors.**

Sendai international workshop November 13-18, 2000

**Re-examination of the role of the Kondo divergence in band formation for high  $T_c$  superconductors.**

The Third International Conference on New Theories, Discoveries and Applications of Superconductors and Related Materials, January 15 - 19, 2001 Honolulu, Hawaii.

**Quantum critical points ARPES and a Jordan-Wigner formulation for high  $T_c$  superconductors**

Workshop for the inauguration of the international frontier center for advanced materials Institute for Materials Research, Tohoku University, Japan. June 2002

**Hole phase separation in underdoped cuprate superconductors**

International Symposium on Inhomogeneous and Strongly Correlated Materials with Novel Electronic Properties (ISCM), Miami Beach FL March 24-28, 2003.

**The formation of hole rich regions in underdoped cuprate superconductors.**

Fourth International Conference on New Theories, Discoveries, and Applications of Superconductors and Related Materials (New3SC-4) January 16 - 21, 2003 San Diego, California

**Current driven dynamics of bi-domain spin valves**

CREST mini-workshop on Spintronics 1 March , Tohoku University, Japan. June 2005

**Spinmotive Forces and Torque Transfer in Spin Valves and Domain Walls**

24th International Conference on Low Temperature Physics, 10 - 17 August 2005, Orlando, Florida, USA

**INVITED EXTERNAL SEMINARS (while at the University of Miami)**

University of Lieden, Netherlands. June 1981 and 1982

University of Groningen, Netherlands. Oct. 1992

Technische Hochschule, Darmstadt, West Germany. June 1982 and May 1989

Free University of Berlin, West Germany. July 1981 and June 1982

University of Geneva, Switzerland. June 1981, June 1988, May 1989, December 1991, May 2001

IBM, Yorktown Heights. May 1983, July 1984, August 1986 and May 1988

Clemson University, Clemson S.C. Oct 1984

National Research Council, Ottawa, Canada. August 1986 and December 1986

Virginia Tech., Blacksburg, Virginia. January 1987

University of Florida, Gainesville, September 1987

ETH Zurich, June 1990, June 1991 and February 1994

EPF Lausanne, June 1990, December 1991

Florida State University, March 1993

University of Neuchâtel, January, 1992, July 1993, December 1996

University of Karlsruhe, November 1993

University and CNRS, Grenoble, January 1994, juillet 1996, December 1997, May 1998.

University of Toulouse, July 1995

University of Bordeaux, July 1995

University of Cergy-Pontoise, May 1994, December 1996

University of St. Andrews, Scotland, July 29, October 14, 1999

Institute for Materials Research, Tohoku University, Japan, September and October 2000, February, March 2001, January, August 2002, January, May, July, September 2003, June, August 2004, June 30, 2005

Technical University, Delft, 8 June 2005

#### **MAJOR ADMINISTRATIVE AND COMMITTEE APPOINTMENTS.**

Coordinator of the Physics Graduate Program, 1980-1985.

Member of the University Fellowships Committee, 1980-1986, 1995-1998.

Chairman of the Parking Authority Committee, 1985-1986.

Graduate Faculty Representative on the University Faculty Senate, 1985-1987

Four times chairman of Department search committees.

Member of Consultative Committee for Dean of Arts and Sciences, 2001

#### **DOCTORAL STUDENTS**

1. M. Abella, **Study of the a.c. Josephson effect in S-N point contacts**, University of Miami, 1991

2. M. Naghashpour **Study of universal behavior for the single-ion Kondo effect** ,  
University of Miami, 1991
3. L. Leong **Studies of a model for arc discharges** ,  
University of Miami, 1993
4. H Preda, University of Miami, 2001

## PUBLICATIONS.

- [1] **Hyperfine Splitting in a Metal of Localized Moment.**  
S. E. Barnes, J. Dupraz and R. Orbach, J. Appl. Phys. **42** 1959 (1971).
- [2] **Generalization of the Drone Fermion Method.**  
S. E. Barnes J. Phys. C**5** L178 (1972).
- [3] **Diagrammatic Analysis of the Dynamics of Local Moments in Metals.**  
S. E. Barnes and J. Zitkova-Wilcox, Phys. Rev. **B7** 2163 (1973).
- [4] **Fine-Structure Splitting of a Localized Moment in a Metal: A Diagrammatic Analysis.**  
S. E. Barnes, Phys. Rev. **B9** 4789 (1974).
- [5] **The Effect that Finite Lattice Spacing has upon the ESR Bloch Equations.**  
S. E. Barnes, J. Phys. **F4** 1535 (1974).
- [6] **Dynamic EPR Susceptibility for the “Ionic” Approach to the Anderson Model.**  
S. E. Barnes, J. Phys. **F6**, 115 (1976).
- [7] **On the Asymmetry in the Kondo Susceptibility.**  
S. E. Barnes, J. Phys. **F6** L191 (1976).
- [8] **New Method for the Anderson Model.**  
S. E. Barnes, J. Phys. **F6** 1376 (1976).
- [9] **On the Kondo Effect in the Dynamics of Local Moments.**  
S. E. Barnes, J. Phys. **F6**, 1713 (1976).
- [10] **EPR Fine Structure of S-State Ions.**  
M. Hardiman, J. Pellison and S. E. Barnes, pg. 71, Proc. IIInd. Conf. on Crystal Field Effects in Metals and Alloys. Plenum Press (1977).
- [11] **Justification of Ionic Approach to Local Moments.**

S. E. Barnes, pg. 301, Proc. XIX Congress Ampere, North Holland (1977).

[12] **Localizing Pseudopotential for Local Moments and Certain Virtual Bound States.**

S. E. Barnes, Phys. Rev. B **16** 4378 (1977).

[13] **Spectroscopy of Type I Superconductors using Magnetic Impurity Relaxation of Josephson Junction Fiske Modes.**

S. E. Barnes, J. Phys. C **10** 2863 (1977).

[14] **New Method for the Anderson Model II: The  $U=0$  Limit.**

S. E. Barnes, J. Phys. F **7** 2637 (1977).

[15] **Anomalous Crystal Field Splitting of Lanthanide S-State in Metals.**

S. E. Barnes, K. Baberschke and M. Hardiman, Phys. Rev. B **18** 2409 (1978).

[16] **Crystal Field Splitting and Spin-Spin Interactions of Eu and Gd in  $\text{LaAl}_2$  Single Crystals.**

K. Baberschke, S. E. Barnes and B. Bachor, J. Appl. Phys. **49** 1451 (1978).

[17] **A Simple Model for the Resistive-Non-Resistive Transition in Granular Superconductors.**

S. E. Barnes, Phys. Lett. **66A**, 422 (1978).

[18] **Compatibility of the Friedel-Anderson VBS and Ionic Approaches to the Theory of Magnetic Ions in Metals.**

S. E. Barnes, J. de Physique, **39** C5-828 (1978).

[19] **RPE du Gd dans  $\text{XMO}_6\text{S}_8$ ,  $\text{X} = \text{Pb, Sn}$ .**

R. Odermatt, M. Hardiman, S. E. Barnes, J. Pellisson and M. Peter, Helv. Phys. Act. **52** 367 (1979).

[20] **Electron Paramagnetic Resonance of Gd in Platinum.**

M. Hardiman, J. Pellisson, S. E. Barnes, P. E. Bisson and M. Peter, Phys. Rev. B **22** 2175 (1980).

- [21] **ESR of Eu:LaAl<sub>2</sub> Single Crystals: Crystal Fields and the Effective Exchange Interaction.**  
K. Baberschke, S. E. Barnes and B. Bachor, J. Mag. and Mag. Mat. **15-18** 33, (1980).
- [22] **Crystal Field and Exchange Parameters in LaAl<sub>2</sub>:Eu and LaAl<sub>2</sub>Gd.**  
K. Baberschke, B. Bachor and S. E. Barnes, Phys. Rev. B**21** 2666, (1980).
- [23] **On the Validity of the Resistively Shunted Josephson Junction Model for Small Area SNS Junctions in a Magnetic Field.**  
S. E. Barnes, J. Appl. Phys. **51** 6438 (1980).
- [24] **Electron Spin Resonance Modes in a Spin-Glass.**  
S. E. Barnes, Physics B+C **108** 771 (1981).
- [25] **Spin-Waves in a Spin-Glass.**  
S. E. Barnes, J. Phys. F**11** L249 (1981).
- [26] **ESR Modes and the Edwards-Anderson Theory of the Spin-Glass State.**  
S. E. Barnes, Phys. Rev. Lett. **47** 1913 (1981).
- [27] **Instabilities in the Edwards-Anderson Ground State for a Spin-Glass.**  
S. E. Barnes, Phys. Lett. **87A** 121 (1981).
- [28] Review: **Theory of Electron Paramagnetic Resonance of Ions in Metals.**  
S. E. Barnes, Advances in Physics **30** 801-938 (1981).
- [29] **An ESR Study of Local Moments and Conduction Electrons in ScGd.**  
S. E. Barnes, K. Baberschke and J. Nagel, J. Phys. F**13** 347 (1982).
- [30] **Experimental Investigation of Magnetic Behavior of SNS Josephson Junctions.**  
K. Bures, S. E. Barnes and K. Baberschke, J. Appl. Phys. **54** 7073 (1982).
- [31] **Magnetic Resonance in the Spin-Glass (LaGd):Al<sub>2</sub>.**  
M. Zomack, K. Baberschke and S. E. Barnes, Phys. Rev. B**27** 4135 (1983).

- [32] **ESR Study of Crystal Field Effects in (ErY)Al<sub>2</sub>.**  
V. Dobler, K. Baberschke and S. E. Barnes, Phys. Rev. B **27** 6593 (1983).
- [33] **Theory of Josephson-Type Oscillations in a Moving Charge-Density-Wave.**  
S. E. Barnes and A. Zawadowski, Phys. Rev. Lett. **51** 1003 (1983).
- [34] **A Non-Mean-Field Interpretation of the Irreversibility Line in Spin-Glasses.**  
A. P. Malozemoff, S. E. Barnes and B. Barbara, Phys. Rev. Lett. **51** 1704 (1983).
- [35] **ESR Relaxation in Spin-Glasses.**  
S. E. Barnes, Phys. Rev. B **30** 3944 (1984).
- [36] **ESR and Magnetization of the Spin-Glass CuMn at Low Concentrations.**  
F. R. Hoekstra, G.J. Nienwenhuys, K. Baberschke and S. E. Barnes, Phys. Rev. B **29** 1292, (1983).
- [37] **Microscopic Formulation for a Josephson Array.**  
S. E. Barnes J. Phys. F **14** 1925, (1984).
- [38] **On the Field Dependence of the Spin-Glass Susceptibility Peak.**  
B. Barbara, A. P. Malozemoff and S. E. Barnes, J. Appl. Phys. **55** 1655 (1984).
- [39] **A Scaling Approach to Spin Glass Phenomena.**  
S. E. Barnes, A. P. Malozemoff and B. Barbara, Phys. Rev. B **30** 2765 (1984).
- [40] **ESR in Situe of a Josephson-Tunnel-Junction.**  
K. Baberschke, K. D. Bures and S. E. Barnes, Phys. Rev. Lett. **53** 98, (1984).
- [41] **Non-Mean Field Generalization of the Gabay-Toulouse Line.**  
S. E. Barnes, A. P. Malozemoff and B. Barbara, Proc. 17th Int. Conf. on Low Temp. Phys., pg. 645, ed. Eckern et al, North Holland, Amsterdam (1984).
- [42] **Dynamics of a Charge-Density-Wave in the Josephson Approach.**  
S. E. Barnes, Proc. 17th Int. Conf. on Low Temp. Phys., pg. 1341, ed. Eckern et al, North Holland, Amsterdam (1984).

- [43] **ESR Spectroscopy in SNS Josephson Junctions.**  
K.D. Bures, K. Baberschke and S. E. Barnes, Proc. 17th Int. Conf. on Low Temp. Phys., pg. 827, ed. Eckern et al, North Holland, Amsterdam (1984).
- [44] **Quantum Effects in the Josephson Approach to a CDW.**  
S. E. Barnes, pg. 250, Charge Density Waves in Solids, Lecture Notes in Physics, Gu. Hutiray and J. Solyom (eds.), Vol. **8217**, (1985).
- [45] **Microscopic Theory of Interaction of CDW with Impurities.**  
A. Zawadowski, I. Tutto, S. E. Barnes, P. F. Tua and J. Ruvalds, pg. 240, Charge Density Waves in Solids, Lecture Notes in Physics, Gu. Hutiray and J. Solyom (eds.), Vol. **217**, (1985).
- [46] **Solution of the Kondo Problem by Diagrammatic Methods.**  
S. E. Barnes, Phys. Rev. Lett. **55** 2192 (1985).
- [47] **New Exact Diagram Approach to the Kondo Problem.**  
S. E. Barnes, J. of Mag. and Mag. Materials., **54-57**, 1243-1244 (1985).
- [48] **ESR In Situe with a Josephson Tunnel Junction.**  
K.-D. Bures, K. Baberschke and S. E. Barnes, Jour. of Mag. and Mag. Materials., **54-57**, 1415-1417 (1985).
- [49] **Derivation of Exact Results for the Single Ion Kondo Problem using Diagram Methods.**  
S. E. Barnes, Phys. Rev. **B33**, 3209-3246 (1986).
- [50] **Theory of In Situe Measurements of Wave-vector Dependent Dynamic Susceptibility and ESR Spectroscopy using the A.C. Josephson Effect.**  
S. E. Barnes and F. Mehran, Phys. Rev. **B34**, 4537-4537 (1986).
- [51] **Paramagnetic Resonance of  $\text{Cu}^{2+}$  in the Superconductor  $\text{Y}_{0.2}\text{Ba}_{0.8}\text{CuO}_x$ .**  
F. Mehran, W. J. Gallagher, R. L. Sandstrom, and S. E. Barnes, Phys. Rev. B **36**, 740-742 (1987).
- [52] **Observation of  $\text{Al}_2\text{O}_3:\text{Cr}^{3+}$  Magnetic Resonance via Solitons in Long Josephson Junctions.**

F. Mehran, S. E. Barnes, C. C. Chi, R. L. Sandstrom and C. P. Umbach, Rapid Comm. Phys. Rev. **B36**, 728 (1987).

[53] **Electron Paramagnetic Resonance of  $Gd^{3+}$  in the Superconductor  $GdBa_2Cu_3O_x$ .**

F. Mehran, S. E. Barnes, C. C. Tsuei and T. R. McGuire Rapid Comm. in Phys. Rev. **B36**, 7266 (1987).

[54] **Observation by electron spin resonance of a pseudo-cubic site in  $YBa_2Cu_3O_{7-x}$ .**

F. Mehran, S. E. Barnes, T. R. McGuire, T. R. Dinger, D. L. Kaiser and F. Holtzberg, Solid State Comm. **66**, 299 (1988)

[55] **Theory of the Jahn-Teller-Kondo effect.**

S. E. Barnes Phys. Rev. **37**, 3671 (1988)

[56] **Alternative Feynman Diagram Method for the General Spin Kondo Problem.**

S. E. Barnes, Phys. Rev. **37**, 2220 (1988)

[57] **Comparison of the EPR of the Antiferromagnetic Green Phase Compounds  $(Y, Gd)_2BaCuO_5$  and the High  $T_c$  Superconductors  $(Y, Gd)Ba_2Cu_3O_7$ .**

F. Mehran, S. E. Barnes, E. A. Giess and T. R. McGuire Solid State Comm. **67**, 55 (1988)

[58] **Absence of excited triplets in the EPR of the high  $T_c$  superconductors and the anti-ferromagnetic insulator CuO**

F. Mehran, S. E. Barnes, G. V. Chandrashekhar, T. R. McGuire and M. W. Shafer, Solid State Comm. **67**, 1187-1189 (1988)

[59] **Excitations in a nearly half-filled Hubbard model with  $U = \infty$ .**

S. E. Barnes, Phys. Rev **B40**, 723-726 (1989)

[60] **Holon statistics**

S. E. Barnes, J. Phys. C.M. **1**, 2293 (1989)

[61] **Theory of positron annihilation in superconductors**

S. E. Barnes and M. Peter, Phys. Rev **B40**, 10 958 (1989)

- [62] **Unusual behavior of the Gd ESR in single crystals of  $\text{Gd}_y\text{Y}_{1-y}\text{Ba}_2\text{Cu}_3\text{O}_{6+x}$  with  $x = 0.1-0.8$  and  $y = 0.03-0.06$ : Evidence for a magnetic interaction in the superconductors.**  
D. Shaltiel, S. E. Barnes, H. Bill, M. Francois, H. Hagemann, J. Jegondaz, D. Lovy, P. Monod, M. Peter, A. Revcolevschi, W. Sadowski and E. Walker, *Physica C* **161**, 13-20, (1989).
- [63] **Spin disordered ground state for a nearly half-filled Hubbard model.**  
S. E. Barnes, *Phys. Rev B* **41**, 8991 (1990)
- [64] **All electronic Peierls instability in the infinite U mean-field theory for the Hubbard model**  
S. E. Barnes, Rapid Communication, *Phys. Rev. B* **41**, 11 701 (1990).
- [65] **Basic theory for 2D-ACAR of positrons from superconductors.**  
S. E. Barnes, pg. 482-498 *Third International Workshop on Positron and Positronium Chemistry*, Ed. Y. C. Jean, World Scientific Publishing Co. Pte. Ltd. Singapore (1990).
- [66] **The t-J model: anyons, flux states, spinons, holons, and all that.**  
S. E. Barnes, *Physica* **165&166**, 987-988 (1990)
- [67] **Flux states for the infinite U limit of the Hubbard model**  
S. E. Barnes, *Phys. Rev.* **44**, 801, (1991).
- [68] **Theory of positron annihilation in the spinon-holon picture**  
S. E. Barnes, *J. Phys. Chem. Solids* **52**, 1525-1533 (1991)
- [69] **Spinon-holon statistics and broken statistical symmetry for the t-J and hubbard models in 2D**  
S. E. Barnes, in *High-Temperature Superconductivity*, pg. 95, ed. Ashkenazi et al., Plenum Press, New York (1991).
- [70] **The mixed state of a superlattice of superconducting sheets**  
S. E. Barnes, *J. Phys. Condens. Matter* **4**, 4135-4147, (1992)
- [71] **What can positrons contribute to high- $T_c$  superconductivity?**

M. Peter, T. Jarlborg, A. A. Manuel, B. Barbiellini and S. E. Barnes, Proc. Sagamore conference on electron spin and momentum densities in solids, Konstanz, Germany, September 2-6, (1991)

[72] **Non-universality in the Kondo effect**

M. Nagashpour and S. E. Barnes, Phys. Rev. Lett. **69**, 3824 (1992)

[73] **New auxiliary particle method for the Hubbard, t-J and Heisenberg models**

D. Vacaru and S. E. Barnes J. Phys. C.M. **6**, 719-728, 1994.

[74] **Application of generalized linear filters in data analysis**

S. E. Barnes, M. Peter, L. Hoffman, A. A. Manuel and A. Shukla, (invited contribution to special edition for 65 birthday of Philippe Choquard) J. Stat. Phys., **76** 679-701, 1994.

[75] **Implications of Fumi's theorem for auxiliary particle methods**

S. E. Barnes, Rapid Communications, Phys. Rev. **B51**, 10 213-10 216 (1995)

[76] **The ground state of the kagomé lattice - a new auxiliary particle approach**

S. E. Barnes, Czech. J. Phys. **46**-S4, 1907 (1996)

[77] **The Possibility of Flux Flow Spectroscopy**

S. E. Barnes, J. L. Cohn and F. Zuo, Phys. Rev. Lett. **77**, 3252 (1996)

[78] **Quantum Coherence in Small Antiferromagnets.**

S. E. Barnes, R. Ballou, B. Barbara and J. Strelén, Phys. Rev. Lett. **79**, 3252 (1997)

[79] **Intermediate spin and certain small magnets**

S. E. Barnes, J. Phys.: Condens Matter **10**, L665-L670 (1998).

[80] **Field-induced quasi-periodic coherence effects in certain small magnets.**

S. E. Barnes, cond-mat/9710302.

[81] **Efficient quantum computing on low temperature spin ensembles.**

S. E. Barnes, quant-ph/9804065.

- [82] **Theory of magnetic structure determination for small ferromagnets**  
M. Preda and S. E. Barnes, J. Appl. Phys. **85**, 5630-5632
- [83] **Auxiliary Particles and Fumi's Theorem.**  
S. E. Barnes, Physics B**259-261**, 179 (1999).
- [84] **Intermediate spin and quantum critical points.**  
S. E. Barnes, cond-mat/9901219.
- [85] **Electronic structure of vortices in High  $T_c$  superconductors.**  
S. E. Barnes, International Journal of Modern Physics B**13**, 3478-3481 (1999).
- [86] **Manifestation of intermediate spin for  $\text{Fe}_8$**   
S. E. Barnes, cond-mat/9907257
- [87] **Intermediate spin Schrödinger cat states and nano-magnets.**  
S. E. Barnes, Phys. Rev. Lett. **87**, 167201 (2001)
- [88] **Re-examination of the role of the Kondo divergence in band formation for high  $T_c$  superconductors.**  
S. E. Barnes, Physica C **364-365**, 127-130 (2001).
- [89] **A Jordan-Wigner transformation for the  $t - J$  and Hubbard models with holes.**  
S. E. Barnes and S. Maekawa, J. Phys. Cond. Matter **14** L19-L28 (2002)
- [90] **Bi-layer splitting in overdoped high  $T_c$  cuprates.**  
S. E. Barnes and S. Maekawa, Phys. Rev. **B67**, 224513 (2003), *also* selected for the July 1, 2003 issue of the Virtual Journal of Applications of Superconductivity.
- [91] **Bi-and Tri-layer splitting in a new formulation of the t-J model of cuprates**  
S. E. Barnes and S. Maekawa, Physica C: Superconductivity, **388-389**, 55-56 (2003)
- [92] **Currents induced by domain wall motion in thin ferromagnetic wires**  
S. E. Barnes and S. Maekawa, cond-mat/0311039 (2003)

- [93] **Physics of Transition Metal Oxides** S. Maekawa, T. Tohyama, S. E. Barnes, S. Ishihara, W. Koshibae and G. Khaliullin, Springer-Verlag, Berlin (2004).
- [94] **Physics of Transition Metal Oxides** S. Maekawa, T. Tohyama, S. E. Barnes, S. Ishihara, W. Koshibae and G. Khaliullin, Springer-Verlag, Berlin (2004).
- [95] **Current-spin coupling for ferromagnetic domain walls in fine wires**, S. E. Barnes and S. Maekawa, Phys. Rev. Lett. **95**, 107204 (2005).
- [96] **Currents induced by domain wall motion in thin ferromagnetic wires**, S. E. Barnes and S. Maekawa, cond-mat/0410021
- [97] **Concepts in Spin Electronics**, Chapter: *Theory of spin-transfer torque and domain wall motion in magnetic nanostructures*, S. E. Barnes and S. Maekawa, Ed. S. Maekawa, Oxford University Press, (2006).
- [98] **Spin and electromotive forces produced by domain wall motion in ferromagnetic wires** S. E. Barnes and S. Maekawa (submitted to Phys. Rev. Lett. 2005)
- [99] **Spinmotive Forces and Torque Transfer in Spin Valves**  
S. E. Barnes, to be publish AIP proceedings series (2006).
- [100] **Spinons, Holons and Flux Tubes in a SU(3) Theory of High  $T_c$  Superconductors**  
S. E. Barnes, to be publish AIP proceedings series (2006).
- [101] **Comment on “Theory of Current-Driven Domain Wall Motion: Spin Transfer versus Momentum Transfer”** S. E. Barnes, Phys. Rev. Lett. **96**, 189701 (2006).