Adrian Mihai Gozar

PUBLICATIONS and CONFERENCES:

Theses:

Inelastic Light Scattering from Low Dimensional Quantum Spin Systems
Ph.D. thesis, University of Illinois at Urbana-Champaign, October 2004
http://research.physics.uiuc.edu/Publications/theses/copies/Gozar.pdf

Coulomb Drag Between Two Parallel Two-Dimensional Electron Gases
M.S. thesis, University of Bucharest, May 1998

Magneto-Transport in Two-Dimensional Electronic Gases (2DEG) and Effects of the Coulomb Interaction
B.S. Thesis, University of Bucharest, May 1998

Books:

Frontiers in Magnetic Materials Springer-Verlag-Berlin-Heidleberg (2005), A. V. Narlikar, Editor; four chapters:

- *Collective Spin and Charge Excitations in* $(Sr,La)_{14-x}Ca_xCu_{24}O_{41}$, A. Gozar & G. Blumberg
- *Electronic Properties of* α' – NaV_2O_5 : A. Gozar & G. Blumberg
- *Collective Magnetic Excitations in* $SrCu_2(BO_3)_2$, A. Gozar & G. Blumberg
- *Magnetic and Charge Correlations in* $La_{2-x-y}Nd_ySr_xCuO_4$*: a Raman scattering study* , A. Gozar, S. Komiya,Y. Ando & G. Blumberg

Patents:

I. Bozovic, G. Logvenov & A. Gozar: *High temperature interfacial superconductivity*. U.S. Patent No. 8,204,564 – issued June 2012.

Peer Reviewed Articles in Professional Journals - chronological order (number of citations > 950, ISI h-index = 14)

1. M. Rubhausen, A. Gozar, M.V.Klein, P. Guptasarma and D.G. Hinks: *Superconductivity induced optical changes for energies of* 100Δ *in cuprates*, Physical Review B 63, 224514 (2001).
2. A. Gozar, G. Blumberg, B. Dennis, B.S. Shastry, N. Motoyama, H. Eisaki and S. Uchida: *Spin dynamics of* $Sr_{14}Cu_{24}O_{41}$ *two-leg ladder studied by Raman spectroscopy*, Physical Review Letters 87, 197202 (2001).
3. A. Koitzsch, G. Blumberg, A. Gozar, B. Dennis, A.P. Ramirez, S. Trebst and S. Wakimoto: *Antiferromagnetism in* $CaCu_3Ti_4O_{12}$ *studied by magnetic Raman spectroscopy*, Physical Review B 65, 052406 (2002).
4. G. Blumberg, A. Koitzsch, A. Gozar, B. Dennis, C.A. Kendziora, P. Fournier and R.L. Greene: *Non-monotonic* $d_{x^2-y^2}$ *superconducting order parameter in* $Nd_{2-x}Ce_xCuO_4$, Physical Review Letters 88, 107002 (2002).

5. A. Gozar: *Raman scattering through surfaces having biaxial symmetry*, Physical Review B 65, 176403 (2002).
6. G. Blumberg, P. Littlewood, A. Gozar, B. Dennis, N. Motoyama, H. Eisaki and S. Uchida: *Sliding density wave in $Sr_{14}Cu_{24}O_{41}$ ladder compounds*, Science 297, 584 (2002).
7. G. Blumberg, A. Koitzsch, A. Gozar, B. Dennis, C.A. Kendziora, P. Fournier and R.L. Greene: Comment on *Non-monotonic d_{x2-y2} superconducting order parameter in $Nd_{2-x}Ce_xCuO_4$*, Physical Review Letters 90, 149702 (2003).
8. G. Blumberg, P. Littlewood, A. Gozar, B. Dennis, N. Motoyama, H. Eisaki and S. Uchida: *Spin dynamics and sliding density wave in $Sr_{14}Cu_{24}O_{41}$ ladders*, Physica C - Superconductivity and its applications 388, 227 (2003).
9. A. Koitzsch, G. Blumberg, A. Gozar, B.S. Dennis, P. Fournier, R.L. Greene: *Low-energy excitations around (pi/2,pi/2) points in the pseudogap phase of $Nd_{1.85}Ce_{0.15}CuO_4$*, Physical Review B 67, 184522 (2003).
10. A. Gozar**,** B.S. Dennis, T. Siegrist, Y. Horibe, G. Blumberg, S. Komiya and Y. Ando: *Inhomogeneous CuO_6 tilt distribution and charge-spin correlations in $La_{2-x-y}Nd_ySr_xCuO_4$ around commensurate hole concentration*, Physical Review B 68, 052511 (2003).
11. A. Gozar, G. Blumberg, P. Littlewood, B. Dennis, N. Motoyama, H. Eisaki and S. Uchida: *Collective density wave excitations in two-leg $Sr_{14-x}Ca_xCu_{24}O_{41}$ ladders*, Physical Review Letters 91, 087401 (2003).
12. A. Gozar, B. Dennis, G. Blumberg, S. Komiya and Y. Ando: *Magnetic order in lightly doped $La_{2-x}Sr_xCuO_4$*, Physical Review Letters 93, 027001 (2004).
13. P. Abbamonte, G. Blumberg, A. Rusydi, A. Gozar, P.G. Evans, T. Siegrist, L. Venema, H. Eisaki, E.D. Isaacs and G.A. Sawatzky: *Crystallization of holes in the spin ladder of $Sr_{14}Cu_{24}O_{41}$*, Nature 431, 1078 (2004).
14. A. Gozar, B. Dennis, H. Kageyama and G. Blumberg: *Symmetry and light coupling to magnetic excitations in $SrCu_2(BO_3)_2$*, Physical Review B 72, 064405 (2005).
15. M.M. Quazilbash, A. Koitzsch, B. Dennis, A. Gozar, H. Balci, C.A. Kendziora, R.L. Greene, G. Blumberg: *Evolution of superconductivity in electron-doped cuprates: Magneto-Raman Spectroscopy*, Physical Review B 72, 214510 (2005).
16. M. Reehuis, C. Ulrich, K.A. Prokes, A. Gozar, G. Blumberg, S. Komiya, Y. Ando, P. Pattison and B. Keimer: *Crystal structure and high-field magnetism of La_2CuO_4*, Physical Review B 73, 144513 (2006).
17. L. Benfatto, M.B.S. Neto, A. Gozar, B.S. Dennis, G. Blumberg, L.L. Miller, S. Komiya and Y. Ando: *Field dependence of the magnetic spectrum in anisotropic and Dzyaloshinskii-Moriya antiferromagnets. II. Raman spectroscopy*, Physical Review B 73, 144513 (2006).
18. A. Gozar, G. Logvenov. V.Y. Butko and I. Bozovic: *Surface Structure Analysis of Atomically Smooth $BaBiO_3$ films*, Physical Review B, 75 R201402 (2007).
19. J. Demsar, A. Gozar, V.K. Thorsmolle, A.J. Taylor and I. Bozovic: *Long-lived near-infrared photoinduced absorption in LaSrAlO4 excited with visible light*, Physical Review B, 76 054304 (2007).

20. G. Logvenov, V.Y. Butko, C.D. Cavellin, J. Seo, A. Gozar and I. Bozovic: *Engineering interfaces in cuprate superconductors*, Physica B - Condensed Matter 403 1149 (2008).
21. A. Gozar, G. Logvenov, L. Fitting, A.T. Bollinger, L. Giannuzzi, D. Muller and I. Bozovic: *High-temperature interface superconductivity between metallic and insulating copper oxides*, Nature 455, 782 (2008).
22. S. Smadici, J.C.T. Lee, S. Wang, P. Abbamonte, A. Gozar, G. Logvenov, C.D. Cavellin and I. Bozovic: *Hole delocalization in superconducting La_2CuO_4 - $La_{1.64}Sr_{0.36}CuO_4$ superlattices*, Physical Review Letters 102, 107004 (2009).
23. C. Homes, S.V. Dordevic, A. Gozar, G. Blumberg, T. Room, D. Huvonen, U. Nagel, A.D. LaForge, D.N. Basov and H. Kageyama: *Infrared spectra of the low-dimensional quantum magnet $SrCu_2(BO_3)_2$: Measurements and ab initio calculations*, Physical Review B 79, 125101 (2009).
24. S.V. Dordevic, L.W. Kohlman, L.C. Tung, Y.-J Wang, A.Gozar, G. Logvenov and I. Bozovic: *Absence of magnetic-field-induced effects in the mid-infrared transmission of $La_{2-x}Sr_xCuO_4$ thin films*, Physical Review B 79, 134503 (2009).
25. G. Logvenov, A. Gozar, and I. Bozovic: *High-temperature interface superconductivity in a single CuO_2 plane*, Science 326, 5953 (2009).
26. G. Logvenov, A. Gozar, V.Y. Butko, A.T. Bollinger, N. Bozovic, Z. Radovic and I. Bozovic: *Comprehensive study of high-Tc interface superconductivity*, J. Phys. Chem. Solids 71, 1098 (2010).
27. M.B. Silva-Neto, G. Blumberg, A. Gozar, B. Dennis, S. Komiya and Y. Ando: *Anisotropies in the optical ac and dc conductivities in lightly doped La2-xSrxCuO4: the role of deep and shallow acceptor states*, J. Phys. Condensed Matter 23, 215602 (2011).
28. A. Suter, E. Morenzoni, T. Prokscha, B.M. Wojeck, H. Lutkens, G. Nieuwenhuys, A. Gozar, G. Logvenov and I. Bozovic: *Two-Dimensional Magnetic and Superconducting Phases in Metal-Insulator $La_{2-x}Sr_xCuO_4$ Superlattices Measured by Muon-Spin Rotation*, Physical Review Letters 106, 237003 (2011).
29. V.K. Thorsmolle, C.C. Homes, A. Gozar, G. Blumberg, J.L.M. van Mechelen, A.B. Kuzmenko, S. Vanishri, C. Marin and H. Ronnow: *Phonon Energy Gaps in the Charged Incommensurate Planes of the Spin-Ladder $Sr_{14}Cu_{24}O_{41}$ Compound by Raman and Infrared Spectroscopy*, Physical Review Letters 108, 217401 (2012).
30. J. Pereiro, A.T. Bollinger, G. Logvenov, A. Gozar, C. Panagopoulos, I. Bozovic: *Insights from the study of high-temperature interface superconductivity*, Phil. Trans. R. Soc. Ser. A 370, 4890 (2012).
31. E. Stilp, A. Suter, T. Prokscha, E. Morenzoni, H. Keller, B.M. Wojeck, H. Luetkens, A. Gozar, G. Logvenov and I. Bozovic: *Magnetic phase diagram of low-doped $La_{2-x}Sr_xCuO_4$ thin films studied by low-energy muon-spin rotation*, Physical Review B 88, 064419 (2103).
32. G. Logvenov, A. Gozar and I. Bozovic: *High temperature interface superconductivity*, J. of Superconductivity and Novel Magnetism, 26, 2863 (2013).
33. A. Gozar and I. Bozovic: *High-Tc interface superconductivity: a review*, Physica C –

Superconductivity and its Applications, 521, 38 (2016).

articles currently under review:

01. A. Gozar, N. Litombe and I. Bozovic: (2016), *Superconductivity in cuprate nano-constriction devices patterned by Helium Ion Beam*, under review, Nature Nanotechnology.
02. X. Leng, J. Pereiro, J. Strle, G. Dubuis, A.T. Bollinger, A. Gozar, C. Panagopoulos, D. Pavuna, I. Bozovic: *Insulator to metal transition in WO3 induced by electrolyte gating*, (2016) in Submission, under review, Nature Materials.
03. X. He, A. Gozar, R. Sundling and I. Bozovic: (2016) *High-precision measurement of magnetic penetration depth in superconducting films*, under review, Reviews of Sci. Instr.

articles currently in preparation:

01. V.K. Thorsmolle, S. Vanishri, C. Marin, D. van der Marel, H. Ronnow, G. Blumberg, C.C. Homes and A. Gozar: (2016) *Low-energy phonons in the low-dimensional quantum spin-Ladder system* $(Sr,La,Ca)_{14}Cu_{24}O_{41}$, in preparation.
02. A. Gozar, O.D. Dagdeviren and U.D. Schwarz: (2016) *Quantitative force and near-field microscopy with tuned quartz tuning forks at high amplitudes*, in preparation.
03. A. Gozar: (2016), *Cryogenic near-field microscopy in correlated electronic systems*, in preparation.

CONFERENCES, SEMINARS, PRESENTATIONS:

Invited Talks (chronological order):

- *Antiferromagnetic Properties in lightly doped High Temperature Superconductor* $La_{2-x}Sr_xCuO_4$, Fourth International Conference on Magnetic and Superconducting Materials, Agadir, Morocco, August 2005.
- *Magnetic, Lattice and Electronic Anisotropy Effects in Detwinned* $La_{2-x}Sr_xCuO_4$ *single crystals*, International Workshop on Complex Behavior in Correlated Electron Systems, Leiden University, The Netherlands, August 2005.
- *Antiferromagnetic Resonances in Undoped and Lightly Doped Cuprates*, International Conference on Low Energy Electrodynamics in Solids, Tallinn, Estonia, June 2006.
- *Time-of-Flight Ion Scattering Spectroscopy in Oxide Thin Films: Surface Structure Analysis and Sensitivity to Atomic Layer-by-Layer Engineering*, North American Conference on Molecular Beam Epitaxy, Duke University, October 2006.
- *Surface Structure Analysis and Sensitivity to Atomic Layer-by-Layer Engineering in Oxide Thin Films*, Materials Research Society, Fall Meeting, Boston, November 2006.
- *Superconductivity at the interface between metallic and insulating cuprates*, Strong Correlations in Low Dimensional Transport and Dynamics, Montauk, September 2007.
- *Interface superconductivity between metallic and insulating cuprates*, International Workshop on Oxide Electronics, Jeju Island, Korea, October 2007.
- *High temperature superconductivity in copper oxide heterostructures*, Materials Research Society, Spring Meeting, San Francisco, April 2009.
- *Insight in high-temperature superconductivity from cuprate heterostructures*, International Conference on Materials and Technologies (CIMTEC), Montecatini Terme, Italy, June 2010.
- *Properties of* $La_{2-x}Sr_xCuO_4$ *– based high-Tc heterostructures and superlattices*, 23rd International Symposium on Superconductivity (ISS2010), Tsukuba, Japan, November 2010.

Condensed Matter Seminars, Contributed Presentations, Posters (chronological order):

- *Spin and charge excitations in doped two-leg ladders* $(Sr_{1-x-y}Ca_xY_y)_{14}Cu_{24}O_{41}$, APS March Meeting, Minneapolis 2000.
- *Effects of Ca substitution on spin and charge dynamics in* $Sr_{14-x}Ca_xCu_{24}O_{41}$ *and* $La_6Ca_8Cu_{24}O_{41}$ *two-leg ladders*, APS March Meeting, Seattle 2001.
- *Collective electronic excitations in magnetically aligned single wall nanotubes*, APS March Meeting, Seattle 2001.
- *Magnetic Raman scattering in S = ½ two-leg ladder* NaV_2O_5, APS March Meeting, Indianapolis 2002.
- *Soft chiral excitations in triangular antiferromagnets*, poster at the International Conference on the Low Energy Electrodynamics in Solids, Montauk, October 2002.

- *Low energy properties and lattice dynamics in $La_{2-x-y}Nd_ySr_xCuO_4$*, poster at the Gordon Conference on Superconductivity, Ventura, January 2003.
- *Lattice dynamics in $La_{2-x-y}Nd_ySr_xCuO_4$*, APS March Meeting, Austin 2003.
- *Bose-Einstein condensation in magnetic insulators*, Bell Laboratories - Lucent Technologies Seminar, June 2003.
- *Magnetic order and field induced ordering in lightly doped $La_{2-x}Sr_xCuO_4$*, Condensed Matter Seminar, Physics Department, U. of California at Santa Cruz, April 2004.
- *Magnetism at Low Doping in $La_{2-x}Sr_xCuO_4$*, Condensed Matter Seminar, Argonne National Laboratory, April 2004.
- *Low energy magnetic properties and field induced ordering in undoped and lightly doped $La_{2-x}Sr_xCuO_4$*, Bell Laboratories-Lucent Technologies, Research Seminar, May 2004.
- *Inelastic Light Scattering From Magnetic Excitations in the Spin-Dimer Compound $SrCu_2(BO_3)_2$*, Condensed Matter Seminar, Brookhaven National Laboratory 2005.
- *Interface superconductivity in bi-layers of insulating and overdoped metallic $La_{2-x}Sr_xCuO_{4+\delta}$*, APS March Meeting, New Orleans, 2008.
- *Interface superconductivity in bilayers of insulating and overdoped metallic $La_{2-x}Sr_xCuO_{4+\delta}$ films*, Condensed Matter Seminar, Brookhaven National Laboratory, 2008.
- *High temperature interface superconductivity in copper oxide multilayers*, International Conference on Materials for Advanced Technology, Singapore, 2009.
- *Interface effects in heterostructures with high T_c cuprates*, Condensed Matter Seminar, Nanyang Technical University, Singapore, 2009.
- *On the Charge Profile in High T_c Heterostructures by Selective Layer Doping*, Condensed Matter Seminar, Brookhaven National Laboratory, 2010.
- *Gapped Sliding Phonons in the Incommensurate Structure of the Ladder-Chain System $Sr_{14}Cu_{24}O_{41}$*, APS March Meeting, Boston 2012.
- *Sliding Phonons in the Incommensurate Structure of the Ladder-Chain System $Sr_{14}Cu_{24}O_{41}$*, Condensed Matter Seminar, Ohio State University, 2012.
- *Variable-Temperature Nano-Optics in Correlated Electronic Systems*, APS March Meeting, Denver, 2014.
- *Cryogenic Near-Field Microscopy in Correlated Electronic Systems*, APS March Meeting, San Antonio, 2015.