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## A - Stanford Synchrotron Radiation Laboratory (SSRL)

### 2007 Publications

#### Peer-Reviewed Journal Articles

1. M. V. Aldrich, J. R. Peralta-Videa, J. G. Parsons and J. L. Gardea-Torresdey, "Examination of Arsenic(III) and (V) Uptake by the Desert Plant Species Mesquite (*Prosopis spp.*) Using X-ray Absorption Spectroscopy", *Sci. Total Environ.* 379, 249 (2007)
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10. B. Gilbert, C. S. Kim, C.-L. Dong, J. Guo, P. S. Nico and D. K. Shuh, "Oxygen K-Edge Emission and Absorption Spectroscopy of Iron Oxyhydroxide Nanoparticles", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 721, 2007
  11. M. Ginder-Vogel, W.-M. Wu, S. Kelly, C. S. Criddle, J. Carley, P. Jardine, K. M. Kemner and S. Fendorf, "Micro-Scale Heterogeneity in Biogeochemical Uranium Cycling", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 190, 2007
  12. S. Greaux, F. Farges, L. Gautron, I. Letard, A.-M. Flank and P. Lagarde, "Redox and Speciation of Uranium in Al-Rich Perovskites from High-Pressure-Temperature Conditions", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 259, 2007
  13. J. Ha, F. Farges and G. E. Brown, Jr., "Adsorption and Precipitation of Aqueous Zn(II) on Hematite Nano- and Microparticles", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 238, 2007
  14. A. Haddi, F. Farges, P. Trocellier, E. Curti, M. Harfouche and G. E. Brown, Jr., "On the Coordination of Actinides and Fission Products in Silicate Glasses", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 256, 2007
  15. F. Juillot, G. Morin, J.-L. Hazemann, O. Proux, S. Belin, V. Briois, G. E. Brown, Jr. and G. Calas, "EXAFS Signatures of Structured Zn at Trace Levels in Layered Minerals", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 247, 2007
  16. W. P. Linak, J.-I. Yoo, S. J. Wasson, W. Zhu, J. O. L. Wendt, F. E. Huggins, Y. Chen, N. Shah, G. P. Huffman and M. Ian. Gilmour, "Ultrafine Ash Aerosols from Coal Combustion: Characterization and Health Effects", *P. Combust. Inst.* 31, 1929 (2007)
  17. G. Lucovsky and J. Lüning, "Spectroscopic Studies of Electronically Active Defects in Transition Metal Oxides for Advanced Si Devices", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 364, 2007
  18. I. J. Pickering and G. N. George, "X-ray Absorption Spectroscopy Imaging of Biological Tissues", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 311, 2007
  19. Y. Pushkar, J. Yano, P. Glatzel, J. Messinger, A. Lewis, K. Sauer, U. Bergmann and V. K. Yachandra, "Polarized Range-extended X-ray Absorption Spectroscopy of Oriented Photosystem II Membranes in the S<sub>1</sub> State", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 346, 2007
  20. M. Ralle, N. J. Blackburn and S. Lutsenko, "Using XAS and SXRF to Study Copper in Wilson Disease at the Molecular and Tissue Level", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 228, 2007
  21. U. Raviv, D. J. Needleman, K. K. Ewert and C. R. Safinya, "Hierarchical Bionanotubes Formed by the Self Assembly of Microtubules with Cationic Membranes or Polypeptides", *J. Appl. Crystallogr.* 40, S83 (2007)
  22. H. Seo, S. Lee, B. Ju, G. Lucovsky and J. Lüning, "Xas Studies of Chemical Bonding of Nitrogen and Oxygen Atoms in Ti/ZrHf High-K Gate Dielectrics", in *13<sup>th</sup> International Conference on X-ray Absorption*

- Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 487, 2007
23. K. M. Shen and Z.-X. Shen, "Doping Evolution of the Cuprate Superconductors from High Resolution ARPES", in *Photoemission*, S. Huffner (ed.), in press (2006)
  24. A. Siani, O. S. Alexeev, C. T. Williams, H. J. Ploehn and M. D. Amiridis, "EXAFS Characterization of Dendrimer-derived Pt/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub>", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 737, 2007
  25. D. M. Singer, F. Farges and G. E. Brown, Jr., "Biogenic UO<sub>2</sub> – Characterization and Surface Reactivity", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 277, 2007
  26. I. L. Smolisky, P. Liu, M. Niebuhr, K. Ito, T. M. Weiss and H. Tsuruta, "Biological Small-angle X-ray Scattering Facility at the Stanford Synchrotron Radiation Laboratory", *J. Appl. Crystallogr.* **40**, S453 (2007)
  27. Y. Tao, J. E. Shokes, R. A. Scott, M. H. Nesson and R. M. S. Schofield, "XAFS Studies of Transition Metal and Halogen Biomaterials in Invertebrate Tools", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 352, 2007
  28. A. Tenderholt, B. Hedman and K. O. Hodgson, "PySpline: A Modern, Cross-Platform Program for the Processing of Raw Averaged XAS Edge and EXAFS Data", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 105, 2007
  29. E. van Hullenbusch, F. Farges, M. Lenz, P. Lens and G. E. Brown, Jr., "Selenium Speciation in Biofilms from Granular Sludge Bed Reactors Used for Wastewater Treatment", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 229, 2007
  30. J. Yano, Y. Pushkar, J. Messinger, U. Bergmann, P. Glatzel and V. K. Yachandra, "Electronic Structure of the Mn<sub>4</sub>Ca Cluster in the Oxygen-evolving Complex of Photosystem II Studied by Resonant Inelastic X-ray Scattering", in *13<sup>th</sup> International Conference on X-ray Absorption Fine Structure - XAFS13*, (B. Hedman and P. Pianetta, eds.), Melville, New York: American Institute of Physics Conference Proceedings 882, 316, 2007

### Theses

1. M. C. Corbett, "Investigation of the Structure and Biosynthesis of the Nitrogenase Molybdenum-iron Protein Metalloclusters", *Stanford University*, 2007; Advisors: K. O. Hodgson and B. Hedman
2. A. Dey, "Nature of Iron-Sulfur Bonds in Electron Transfer and Catalytic Active Sites: Contribution to Reactivity and the Role of Hydrogen Bonding", *Stanford University*, 2007; Advisor: E. I. Solomon
3. S. Nemana, "Synthesis, Characterization and Reactivity of Silicon Dioxide-supported Tantalum Clusters", *University of California, Davis*, 2007; Advisor: B. C. Gates
4. N. Ozguven, "Interdiffusion Studies in Silicon-Germanium Heterostructures and Selective Oxidation for Fabricating Ge-on-insulator", *Stanford University*, 2007; Advisor: P. C. McIntyre
5. M. Polizzotto, "Coupled Hydrologic and Biogeochemical Processes Controlling Arsenic in Aquifers of Southeast Asia", *Stanford University*, 2007; Advisor: S. Fendorf
6. W. F. Schlotter, "Lensless Fourier Transform Holography with Soft X-rays", *Stanford University*, 2007; Advisor: J. Stöhr
7. R Sarangi, ...
8. J. P. Strachan, "Time-resolved X-ray Imaging of Magnetic Nanostructures Driven by Spin-Transfer Torque", *Stanford University*, 2007; Advisor: J. Stöhr

9. J. Yoon, "Spectroscopic and Theoretical Studies of Oxygen Intermediates and Catalytic O\* Reduction in the Multicopper Oxidases", *Stanford University*, 2007; Advisor: E. I. Solomon

### *Invited Presentations*

Bargar, John

1. *Stability and Occurrence of Ternary Oxide-Metal-Ligand Complexes*, Geological Society of America 2006 Annual Conference, Symposium on Reactions at Mineral-Water Interfaces – The Role of Solute Adsorption on Contaminant Co-Adsorption, Mineral Dissolution and Colloidal Behavior, Philadelphia, PA, Oct. 22, 2006.

Bergmann, Uwe

1. *Resonant and Non Resonant Inelastic X-ray Scattering*, Joint ALS/SSRL User Meeting Workshop, Berkeley, CA, October 11, 2006
2. *Secrets in the Ancient Goatskin: The Latest Results from the Archimedes X-ray Imaging Project at SSRL*, SSRL Users' Meeting, Menlo Park, CA, October 12, 2006
3. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Menlo School, Atherton, CA, October 16, 2006
4. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Physics Colloquium, Stanford University, Stanford, CA, October 17, 2006
5. *Archimedes Manuscript under X-ray Vision*, Physics Seminar, San José State University, San José, CA, November 16, 2006
6. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Fermilab Colloquium, Fermi National Accelerator Center, Batavia, IL, November 29, 2006
7. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Science Colloquium, Castilleja School, December 14, 2006
8. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Plenary Session at Agilent Technical Conference, San Francisco Airport Marriott, Burlingame, CA, February 2, 2007
9. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Sonoma State University Public Lecture Series and Undergraduate Colloquium "What Physicists Do.", Rohnert Park, CA, February 12, 2007
10. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Café Scientifique, Silicon Valley, SRI International, Menlo Park, CA, February 13, 2007
11. *Resonant and Non Resonant Inelastic X-ray Scattering*, XAS Short Course for Structural Molecular Biology Applications, Stanford Linear Accelerator Center, Menlo Park, CA, March 14, 2007
12. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Physics Colloquium, Ohio State University, Columbus, OH, May 1st, 2007
13. *Effects of isotope substitution, confinement and mixtures on the structure of liquid water - an X-ray Raman scattering study*, 6<sup>th</sup> International Conference on Inelastic X-ray Scattering IXS2007 at Awaji Yumebutai International Conference Center, Awaji, Japan, May 8, 2007
14. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Public lecture at Polish-American Engineers' Club June Meeting, Little House, Menlo Park, California, June 21, 2007
15. *Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision*, Summer Reading, Palo Alto Library, Palo Alto, California, June 25, 2007
16. *Inelastic X-ray Scattering and Advanced Spectroscopy with eV Resolution*, PETRA III Workshop: Nuclear Resonant and Inelastic X-ray Scattering, Hamburg, Germany, September 10, 2007
17. *Verborgten im mittelalterlichen Pergament: Röntgenstrahl enthüllt Archimedes' älteste Schriften*, Public lecture (in German) at DESY, Hamburg, 11. September, 2007

18. *Archimedes: Ancient Writings under X-ray Vision*, Fermilab Public Lecture Series, Fermi National Accelerator Center, Batavia, IL, September 28, 2007
19. *Rapid-Scan X-Ray Fluorescence Imaging – New Opportunities not just for Old Objects*, Special Symposium on the Future of X-ray Science, 2007 SSRL User's Meeting, Stanford Linear Accelerator Center, Menlo Park, California, September 29, 2007
20. *Resonant and Non Resonant Inelastic X-ray Scattering*, Joint SSRL/ALS Workshop: Introduction to Synchrotron Radiation Techniques, 2007 SSRL User's Meeting, Stanford Linear Accelerator Center, Menlo Park, California, September 30, 2007
21. *Inelastic X-ray Scattering and Advanced Spectroscopy at SSRL*, 2007 SSRL User's Meeting, Stanford Linear Accelerator Center, Menlo Park, California, October 1, 2007
22. *Rapid Scan X-ray Fluorescence Imaging of Large Objects at SSRL*, Workshop: New Opportunities in Microfocusing, 2007 SSRL User's Meeting, Stanford Linear Accelerator Center, Menlo Park, California, October 3, 2007

Brennan, Sean

1. *Analytical Methods for Discriminating Stardust in Aerogel Capture Media*, Denver X-ray Conference, Colorado Springs, July 2007

Cohen, Aina

1. *Remote Access Crystallography*, Remote Access Crystallography Workshop, February 9, 2007, University of Melbourne, Melbourne, Australia
2. *A New Paradigm for Macromolecular Crystallography Research*, The Canadian Light Source Life Science Theme Workshop, November 5, 2007, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
3. *Automated Screening and Remote Data Collection*, RAMC (Recent Advances in Macromolecular Crystallization), September 23, 2007, San Diego, CA
4. *Towards Complete Automation of the Macromolecular Crystallography Experiment*, The Pittsburgh Diffraction Conference, October 26, 2007, The Hauptman-Woodward Medical Research Institute, Buffalo, NY

DeBeer, George

1. *Time-dependent Density Functional Calculations of XAS Pre-edges*, Third BioXAS study Weekend, Synchrotron-Soleil, Saint-Aubin, France (August 2007)
2. *Introduction to X-ray Absorption Near Edge Spectroscopy (XANES)*, SSRL XAS Short Course on Applications in Structural Molecular Biology, Stanford, CA (March 2007)
3. Invited four day lecture series and hands-on practical sessions on XAS theory, experiment, and applications, National Synchrotron Radiation Laboratory in Nakhon Ratchasima, Thailand (May 2007)..
4. *Spectroscopic characterization of high-valent non-heme iron complexes: probing metal vs. ligand-based oxidations*, First Georgian Bay International Conference on Bioinorganic Chemistry (CanBIC), Parry Sound, Canada (May 2007)

Hedman, Britt

1. 3rd BioXAS Study Weekend – “Metalloproteomics”, Synchrotron Soleil, Saint-Aubin, France, August 10-11, 2007
2. SSRL Structural Molecular Biology Summer School, Stanford University, USA, September 9-14, 2007

Hodgson, Keith

1. 9th International Conference on Biology and Synchrotron Radiation, Manchester, England, Plenary Lecture, August

## Mehta, Apurva

1. *Structural and Chemical Analysis at a Local Scale*, Conference on TEM and Synchrotron Radiation Applied to ancient Pottery, Toulouse, France 2007.

## Nilsson, Anders

1. *Hydrogen Bonding Configurations in Water and Aqueous Systems*, Conference on Physics, Chemistry and Biology of Water, Vermont (October 2006)
2. *The Mystery of Water; Liquid Phase and on Surfaces*, Max Planck Society Winterschool, Ringberg Castle, Bavaria, Germany (February 2007)
3. *Hydrogen Bonding in Water; in the Liquid Phase and on Surfaces*, 17<sup>th</sup> International Vacuum Congress, Stockholm, Sweden (July 2007)
4. *Ultrafast Surface Chemistry*, SLAC-DESY workshop on FEL science, Hamburg, Germany (June 2007)
5. *Development and Mechanistic Characterization of Alloy Fuel Cell Catalysts*, DOE Contractor Meeting on the Hydrogen Fuel Initiative, Washington (May 2007)

## Ohldag, Hendrik

1. *X-rays and Magnetism - A Perfect Match*, University of Duisburg-Essen, Germany, September 2007.
2. *X-rays and Magnetism - A Perfect Match*, SPRING-8 Synchrotron, Hyogo Japan, June 2007.
3. *Magnetic Carbon Made Visible Using X-Rays*, European Meeting on Magnetic Carbon, Madrid Spain, September 2007.
4. *X-rays and Magnetism - A Perfect Match*, 1st International Symposium on Advanced Magnetic Materials and Applications, Cheju Island, South Korea, May 2007.
5. *A Soft X-ray STXM for the study of magnetic and correlated Materials*, at the SSRL, Workshop for the development of next generation STXM, Bodega Bay, USA, December 2006.
6. *X-ray Imaging of Magnetic Nanomagnets*, Annual workshop of the Center for Magnetic Nanotechnology, Stanford USA, December 2006.
7. *Mikroskopie mit weicher Rntgenstrahlung Die magnetische Nadel im Heuhaufen finden*, University of Leipzig, Leipzig Germany, November 2006.
8. *How X-rays helped to solve the mystery of Exchange Bias*, Advanced Light Source, 2006 Users' Meeting, Berkeley, USA October 2006.
9. *Soft X-ray Microscopy at the SSRL*, Stanford Synchrotron Radiation Laboratory 2006 Users' Meeting, Stanford, USA, October 2006.

## Pianetta, Piero

1. *TXRF of Genesis Samples*, International Conference on TXRF, Trento, Italy, June 2007

## Scherz, Andreas

1. *Lensless Imaging with Fourier Transform Holography*, Synchrotron Radiation Instrumentation 2007, April 2007 (Baton Rouge, Louisiana)
2. *Magnetization Dynamics in the light of X-FELs*, Challenges and Opportunities in the Study of Materials with Soft X-rays at FLASH and LCLS, DESY/SLAC Workshop, May 2007 (Hamburg, Germany)
3. *Lensless imaging with soft X-ray resonant coherent scattering*, Festkoerper Seminar University Duisburg/Essen, June 2007 (Duisburg, Germany)
4. *Observing Magnetic Nanostructures with Coherent Magnetic Scattering*, Bragg-Stoner Symposium, July 2007 (Leeds, United Kingdom)

Soltis, Michael

1. *New Paradigm for Macromolecular Crystallography Experiments*, International Conference on Biology and Synchrotron Radiation, Manchester, England.
2. *New Paradigm for Macromolecular Crystallography Experiments: Automation and Remote Access*, Soleil Synchrotron, France.
3. *Successes and Challenges for Remote Access to Macromolecular Crystallography Beam Lines*, ESRF Synchrotron, France.

Stöhr, Jo

1. *X-Rays and Magnetism: From Fundamentals to Nanoscale Dynamics*, ESRF Users' meeting, Grenoble, France (February 2007)
2. *Soft X-Ray Science: From Photon Drought to X-Ray Lasers*, Annual APS March Meeting, Denver, CO (March 2007)
3. *Soft X-Ray Science: From Photon Drought to X-Ray Lasers*, Special International Symposium, FA Karlsruhe, Germany (March 2007)
4. *X-Rays and Magnetism: From Fundamentals to Nanoscale Dynamics*, IEEE meeting Northern California Chapter, San Jose, CA (April 2007)
5. *Future Accelerator-Based Photon Sources – A US Perspective*, Meeting of the European Council for soft X-Ray FELs, Berlin, Germany (May 2007)
6. *Fast Dynamics in Magnets at the Nanoscale*, US-France workshop on Nanoscience, Argonne Nat. Laboratory (June 2007)

Tsuruta, Hiro

1. *Spring-loaded inter-domain crosslinks regulate a global conformation switching in HK97 bacteriophage maturation*, 9<sup>th</sup> International Conference on Biology and Synchrotron Radiation (Manchester, UK, August 2007)
2. *Dynamical properties of biological macromolecules and assemblies studied by non-crystalline X-ray scattering and diffraction techniques*, 4<sup>th</sup> workshop of the Japanese Synchrotron Radiation Society (SP-ring8, Harima, Japan, August 2007)
3. *Non-crystalline X-ray scattering in structural biology and biophysics at third generation synchrotrons*, NSLS-II User Workshop (Brookhaven National Laboratory, NY, July 2007)
4. *Small angle scattering and macromolecular crystallography*, EMBO practical school, EMBL-Hamburg (October 2006)

***Publication in journals outside the field indicating significant impact***

1. *Elemental Magnetism*, INTUTE June 8th 2007
  - [http://www.intute.ac.uk/sciences/spotlight/issue49/Elemental\\_magnetism.html](http://www.intute.ac.uk/sciences/spotlight/issue49/Elemental_magnetism.html)
2. *Carbon Joins the Magnetic Club*, **PULSE magazine**, US Department of Energy, June 4th 2007
  - [http://www.ornl.gov/info/news/pulse/pulse\\_v236\\_07.htm](http://www.ornl.gov/info/news/pulse/pulse_v236_07.htm).
3. *Carbon's mysterious magnetism*, **Science News Magazine** June 2nd 2007, featured in the online version of the Encyclopedia Britannica
  - <http://www.britannica.com/eb/topic-357206/magnetic-moment>
4. *First Proof of Ferromagnetic Carbon*, ALS science highlight July 2007
  - [http://www-als.lbl.gov/als/science/sci\\_archive/147carbon.html](http://www-als.lbl.gov/als/science/sci_archive/147carbon.html)
5. *Carbon Joins the Magnetic Club*, SSRL Science highlight May 29th 2007
  - [http://www-ssrl.slac.stanford.edu/research/highlights\\_archive/c\\_ferromagnetism.html](http://www-ssrl.slac.stanford.edu/research/highlights_archive/c_ferromagnetism.html).

6. *Parallel and Antiparallel Interfacial Coupling in AF-FM bilayers*, ALS science highlight August 2006,
  - [http://www-als.lbl.gov/als/science/sci\\_archive/131exchange\\_bias.html](http://www-als.lbl.gov/als/science/sci_archive/131exchange_bias.html).
  - Pushkar, et al. **JBC**, 282, 7198, 2007 was the cover article and chosen as paper of the week by the Journal of Biological Chemistry.
7. *Magnetic properties of Carbon Identified*, **The Stanford Daily** May 22nd 2007,
  - <http://daily.stanford.edu/article/2007/5/22/magneticPropertiesOfCarbonIdentified>
8. *Carbon Joins the Magnetic Club - Element holds promise for information technology*, **Stanford Report** May 16th 2007
  - <http://news-service.stanford.edu/news/2007/may16/magcarb-051607.html>
9. *Carbon Joins the Magnetic Club*, SLAC press release May 11th 2007,
  - <http://home.slac.stanford.edu/pressreleases/2007/20070511.htm>

### Archimedes Experiment, Press Summary

The Archimedes experiment at SSRL has attracted worldwide interest, generating extensive press coverage. What follows are the links which have been found so far – doubtless there are countless more which have yet to be identified.

#### Television

ABC News

<http://abclocal.go.com/kgo/story?section=local&id=4426310> (Nationwide)

Fox News

<http://www.ktvu.com/video/9620190/index.html>

NBC News

<http://www.nbc11.com/news/4532852/detail.html> (text only)

CBC

Reuters TV

History Channel

#### Radio

NPR

<http://www.npr.org/templates/story/story.php?storyId=5583668>

KESQ News

<http://www.kesq.com/Global/story.asp?S=5242922&nav=9qrx>

WBBM 780

<http://www.wbbm780.com/pages/64747.php>

#### International Press

***X-rays Reveal Archimedes Secrets*, Jonathan Fildes, BBC News**

<http://news.bbc.co.uk/2/hi/science/nature/5235894.stm>

***Eureka! Ancient Works by Archimedes Rediscovered*, Geneviève Roberts,**

The Independent

<http://news.independent.co.uk/europe/article1211357.ece>

Irish Independent [http://www.unison.ie/irish\\_independent/stories.php3?ca=27&si=1664165&issue\\_id=14442](http://www.unison.ie/irish_independent/stories.php3?ca=27&si=1664165&issue_id=14442)

Unison.ie

<http://www.unison.ie/stories.php3?ca=27&si=1664165>

***Eureka! X-ray Vision Helps Decipher Archimedes's Words of Wisdom, Roger Highfield,***

The Daily Telegraph

<http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2006/08/03/warchi03.xml>

New York Sun

<http://www.nysun.com/article/37237>

***X-Rays Illuminate Archimedes Writings***

United Press International

<http://www.upi.com/NewsTrack/view.php?StoryID=20060803-022947-3612r>

DailyIndia.com

<http://www.dailyindia.com/show/48286.php/X-rays-illuminate-Archimedes-writings>,

<http://www.dailyindia.com/show/48303.php/UPI-NewsTrack-Health-and-Science-News>

North Korea Times

<http://story.northkoreatimes.com/p.x/ct/9/cid/dd8845aa60952db2/id/6b975c4a68934a02/>

Monsters and Critics (US)

[http://science.monstersandcritics.com/news/article\\_1186808.php/Health\\_and\\_Science\\_News\\_Roundup](http://science.monstersandcritics.com/news/article_1186808.php/Health_and_Science_News_Roundup)

Political Gateway (US)

<http://www.politicalgateway.com/news/read/28466>

St. Tammany.com

<http://www.sttammany.com/news-detail/article/564/upi-newstrac-4ae22ea538.html>

***Rayos X para Arquímedes, Helena Cebrian***

El Pais

[http://www.elpais.es/articulo/sociedad/Rayos/X/Arquimedes/elpporsoc/20060730elpepisc\\_8/Tes/](http://www.elpais.es/articulo/sociedad/Rayos/X/Arquimedes/elpporsoc/20060730elpepisc_8/Tes/)

***El Mundo link is unavailable.***

***Local/National Press***

Terence Chea's article for the Associated Press was published to a variety of national and international news sources.

**National**

USA Today

[http://www.usatoday.com/news/nation/2006-08-04-manuscript\\_x.htm](http://www.usatoday.com/news/nation/2006-08-04-manuscript_x.htm)

ABC News

<http://abcnews.go.com/Technology/wireStory?id=2276486> ,

<http://abcnews.go.com/Technology/wireStory?id=2276207> ,

<http://abcnews.go.com/Technology/wireStory?id=2275871>

Salon.com

<http://www.salon.com/wire/ap/archive.html?wire=D8JA3LE80.html>

CBS News

<http://www.cbsnews.com/stories/2006/08/05/ap/tech/mainD8J9VSVG3.shtml>

Fox News

<http://www.foxnews.com/story/0,2933,207292,00.html>

KLTV ABC7

<http://www.kltv.com/Global/story.asp?S=5249125>

KESQ News

<http://www.kesq.com/Global/story.asp?S=5242922&nav=9qrx>

WBBM 780

<http://www.wbbm780.com/pages/64747.php>

Yahoo News

[http://news.yahoo.com/s/ap/20060805/ap\\_on\\_sc/archimedes\\_manuscript](http://news.yahoo.com/s/ap/20060805/ap_on_sc/archimedes_manuscript)

AOL News

[http://articles.news.aol.com/news/\\_a/particle-acceleratorreveals-archimedes/20060804231409990001?cid=2194](http://articles.news.aol.com/news/_a/particle-acceleratorreveals-archimedes/20060804231409990001?cid=2194)

MSNBC

<http://www.msnbc.msn.com/id/14226275/>

Discovery Channel

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### Books and Conferences

1. Y. Y. Chen, P. H. Huang, C. H. Booth and J. M. Lawrence, "Disorder Effects on Kondo Behavior in  $\text{CePt}_{2+x}$ ", *Proc. International Conference on Strongly Correlated Electron Systems - SCES 2005, Physica B* **378-380**, 778 (2006)
2. K. Ignatyev, K. Huwig, R. Harvey, H. Ishii, J. Bradley, K. Luening, S. Brennan and P. Pianetta, "XRF MicroCT Study of Space Objects at SSRL", *Proc. SPIE* **6318**, 631825 (2006)
3. G. Lucovsky, J. Lüning, N. A. Stoute, H. Seo, C. L. Hinkle and B. Ju, "Band Edge Traps at Spectroscopically-detected O-Atom Vacancies in Nanocrystalline  $\text{ZrO}_2$  and  $\text{HfO}_2$ : An Engineering Solution for Elimination of O-Atom Vacancy Defects in Non-crystalline Ternary Silicate Alloys", *ECS Trans.* **1**, 381 (2006)
4. A. Salleo, L. H. Jimison, M. M. Donovan, M. L. Chabinyk and M. F. Toney, "Micro-structural Effects on the Performance of Poly(thiophene) Field-effect Transistors", *Proc. SPIE*, **6336**, 63360C (2006)
5. J. Stöhr and H. C. Siegmann, *Magnetism: From Fundamentals to Nanoscale Dynamics*, Springer Series in Solid-State Sciences, Vol 152 (2006) XVIII, 820 p.
6. A. H. Welch, K. G. Stollenwerk, G. N. Breit, A. L. Foster, J. C. Yount, J. W. Whitney, M. N. Uddin, M. M. Alam and M. S. Islam, "Attenuation of Arsenic in Bangladesh Sediments: Implications for Ground-water Development", in R. Naidu, E. Smith, G. Owens, P. Bhattacharya, P. and P. Nadebaum, eds., *Managing Arsenic in the Environment: From Soil to Human Health*, Collingwood, CSIRO Publishing (2006) pp. 363-377

7. M. Zhang; W. Tao and P. A. Pianetta, "Dynamics Modeling and Analysis of Gene Guns for Gene Therapy", 2006 Conference on International Robotics and Automation, 15-19 May 2006, Orlando, FL, USA; p.1774-9

### Theses

1. A. M. Amoia, "Barrel Rigidity, Heme Distortion, Ligand Protection, and Nitric Oxide Interactions with Heme in Nitrophorin 4", *University of Arizona*, 2006; Advisor: W. R. Montfort
2. D. A. Calarese, "Structural Studies of HIV-1 Neutralizing Antibody 2G12", *The Scripps Research Institute*, 2006; Advisor: I. A. Wilson
3. S. Fritz Vos, "Structure and Transport in Organic Semiconductor Thin Films", *University of Minnesota*, 2006; Advisor: C. D. Frisbie
4. L. Gan, "Conformational and Covalent Control of Bacteriophage HK97 Capsid Expansion", *The Scripps Research Institute*, 2006; Advisor: J. E. Johnson
5. S. E. Kaiser, "Structural Basis of FFAT Motif-mediated ER Targeting", *Stanford University*, 2006; Advisor: A. T. Brunger
6. R. Kelekar, "Study of Potentially Half-metallic Cobalt-Chromium-Iron-Aluminum Heusler Alloys", *Stanford University*, 2006; Advisor: B. C. Clemens
7. B. O. Leung, "Complexes of Mercury, Cadmium and Silver with Cysteine", *University of Calgary*, 2006; Advisor: F. Jalilehvand
8. D. Lundberg, "The Coordination Chemistry of Solvated Metal Ions in DMPU - A Study of a Space-demanding Solvent", *Swedish University of Agricultural Sciences*, 2006; Advisor: M. Sandström
9. E. J. Schofield, "The Formation and Characterisation of Nanoporous Materials", *Imperial College London*, 2006; Advisor: M. Ryan
10. A. J. Slowey, "Speciation and Transport of Mercury from Mine Tailings to Model Sulfidogenic Sediments", *Stanford University*, 2006; Advisor: G. E. Brown, Jr.
11. S.-I. Yoon, "Structural and Biophysical Analysis of IL-10 Receptor Interactions with Cellular and Epstein-Barr Virus IL-10", *University of Alabama, Birmingham*, 2006; Advisor: M. R. Walter

## C - PULSE

### Invited Papers

Acremann, Y.

1. *Time-resolved imaging of spin transfer switching: beyond the macrospin concept*, Conference on Magnetism and Magnetic Materials (MMM), Baltimore, MD, January 7, 2007
2. X-ray imaging of spin transfer induced magnetization reversal, APS March Meeting, Denver, CO, March 5, 2007
3. *Magnetism - fast and small*, DESY-SLAC workshop on usage of FELs, Hamburg, Germany, May 24, 2007
4. *Spin injection - ultra-fast and ultra-small*, Solid State Seminar, ETH, Zurich, Switzerland, May 31, 2007
5. *Spin injection - ultra-fast and ultra-small*, Physics Seminar IBM Research Center, Zurich, Switzerland, June 5, 2007
6. *The time machine for STXM*, Swiss Light Source, Villigen, Switzerland, July 27, 2007
7. *Spin injection - A magnetic hurricane*, IBM Research Center Seminar, Yorktown Heights, NY, September 7, 2007
8. *Spin current amplifier*, Western Institute of Nanoelectronics 2 Year Annual Review, Los Angeles, CAS, September 20, 2007
9. *Ultrafast x-ray Techniques, an introduction*, Joint SSRL/ALS workshop: Introduction to Synchrotron Radiation Techniques, Menlo Park, CA, September 20, 2007

## Bucksbaum, P.

1. *AMO 2010: Controlling the Quantum World*, P. Bucksbaum, Invited talk to the Board on Physics and Astronomy of the National Research Council, Irvine, CA, October, 2006
2. *Ultrafast control of atoms and molecules*, Harvard University Physics Colloquium, Cambridge, MA, October, 2006
3. *Ultrafast control of atoms and molecules*, U. C. Berkeley Physics Colloquium, Berkeley, CA, October, 2006
4. *Ultrafast control of atoms and molecules*, University of Oregon Physics Colloquium, Eugene, OR, November, 2006
5. *Ultrafast X-ray science at SLAC: Preparing for LCLS*, International Plasma Physics meeting, NIST, Gaithersburg, MD, March, 2007
6. *AMO 2010: Controlling the Quantum World*, Division of Engineering and Physical Science, National Research Council, Irvine, CA, March, 2007
7. *Ultrafast X-ray science at SLAC and LCLS*, APS March Meeting, Denver, CO, March, 2007
8. *Ultrafast Quantum Control: New tools to view and control the quantum world*, Director's Colloquium, Los Alamos National Laboratory, April, 2007
9. *AMO Physics with LCLS*, Ultrafast Summer School, Stanford Linear Accelerator Center, Menlo Park, CA, June 20, 2007
10. *Atomic Attophysics*, AMO Gordon Conference, Tilton, NH, July 4, 2007
11. *Ultrafast X-ray science at SLAC and LCLS*, International Conference on Photons, Atoms, and Qubits, Royal Society of London, September, 2007
12. *PULSE: The center for Photon Ultrafast Laser Science and Engineering*, AMOS Contractors' Meeting, Airlie, VA, September 10, 2007
13. *Advances in time-resolved X-ray science: Tutorial from synchrotrons to X-ray FEL's*, Frontiers in Optics, San Jose, CA, September 18, 2007

## Fritz, D. M.

1. *Mapping the excited state potential energy surface of bismuth*, 33rd Annual SSRL Users' meeting, Menlo Park, CA, October 9-13, 2006
2. *Watching atoms move with X-rays*, Lockheed Martin Colloquium, Palo Alto, CA, June 7, 2007

## Gaffney, K. J.

1. *Free electron laser studies of structural dynamics*, Ultrafast Dynamics on Surfaces and in Liquids Workshop at SSRL, Menlo Park, CA, June 7, 2007
2. *Ultrafast diffuse scattering studies of melting*, 33rd Annual SSRL Users' meeting, Menlo Park, CA, October 9-13, 2006
3. *Making molecular movies: ten trillion frames per second*, Public Lecture, Stanford Linear Accelerator Center, Menlo Park, CA, December 12, 2006
4. *Pump probe chemical dynamics*, Ultrafast Summer School, Stanford Linear Accelerator Center, Menlo Park, CA, June 20, 2007
5. *Femtosecond X-ray scattering studies of melting*, AMOS Contractors' Meeting, Airlie, VA, September 10, 2007

## Gühr, M.

1. *High harmonic generation on N<sub>2</sub>*, MPQ Munich, Garching, Germany, 2007
2. *Perspectives for high harmonic imaging of conical intersections on SO<sub>2</sub>*, Institut für Theoretische Chemie, Heidelberg, Germany, 2007

Hillyard, P.B.

1. *Application of ultrafast X-rays to the study of time-dependent material properties*, 62nd Northwest Regional Meeting of the American Chemical Society, Boise, ID, June 17, 2007

Hommelhoff, P.

1. *Extreme localization of electrons in space and time*, Gordon Conference on Atomic Physics, Tilton, NH, July 4, 2007

Siegmann, H.C.

1. *Switching the magnetization*, 2006 SSG Lecture Series, Scientific support group, ALS, Berkeley, CA, December 7, 2006
2. *Magnetism with Electron Beams* 2007 SSG Lecture Series, Scientific support group, ALS, Berkeley, CA, January 18, 2007
3. *New basic understanding and opportunities for applications of magnetism*, Annual SSRL and LCLS users' meeting, special symposium: the future of X-ray science, Menlo Park, CA, September 28-29, 2007

Stöhr, J.

1. *Up and down spins & the two-current model*, 2006 SSG Lecture Series, Scientific support group, ALS, Berkeley, CA, December 7, 2006
2. *X-rays, magnetism and Moore's law*, 2007 SSG Lecture Series, Scientific support group, ALS, Berkeley, CA, February 1, 2007
3. *X-rays and Magnetism: From fundamentals to nanoscale dynamics*, 2007 ESRF Users' Meeting, Grenoble, France, February 2007
4. *Soft X-ray science: From photon drought to X-ray lasers*, APS March Meeting, Denver, CO
5. *Soft X-ray science: From photon drought to X-ray lasers*, Special International Symposium, FA Karlsruhe, March, 2007
6. *X-rays and Magnetism: From fundamentals to nanoscale dynamics*, IEEE meeting Northern California chapter, San Jose, CA, April, 2007
7. *Future accelerator-based photon sources – a US perspective*, European Council for Soft X-ray FELs, Berlin, Germany, May, 2007
8. *Fast dynamics in magnets at the nanoscale*, US-France workshop on Nanoscience, Argonne National Laboratory, June, 2007

Wen, H. and Lindenberg, A. M.

1. *Table-top high power terahertz source and its applications*, Materials Science Colloquium, Lawrence Berkeley National Laboratory, July, 2007

## D • XLAM

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### Publications

1. Shimizu, KT, Pala, RA, Fabbri, JD, Brongersma, ML, and Melosh, NA, "Probing molecular junctions using surface plasmon resonance spectroscopy," *Nano Letters* 6 (12), 2797 (2006)
2. H. Bluhm (Moler group student), "Magnetic Fields above the Surface of a Superconductor with Internal Magnetism," *Phys. Rev. B*, in press (2007).
3. C. W. Hicks, L. Luan, K. A. Moler, E. Zeldov, and H. Shtrikman, "Noise characteristics of 100 nm scale GaAs/AlxGa1-xAs scanning Hall probes," *Appl. Phys. Lett.* 90, 133512(2007).
4. J. W. Guikema,\* H. Bluhm, D. A. Bonn, R. Liang, W. N. Hardy, K. A. Moler, "Observations of two-dimensional vortex behavior in very underdoped YBa2Cu3O6+x," submitted to *Phys. Rev. B*.

5. Suk Bum Chung, Hendrik Bluhm (Moler group student), Eun-Ah Kim, "Stability of half-quantum vortices in px+ipy superconductors," *Phys. Rev. Lett.*, in press (2007).
6. J. R. Kirtley, C. Kallin, C. W. Hicks, E.-A. Kim, Y. Liu, K. A. Moler, Y. Maeno, and K. D. Nelson, "Upper limit on spontaneous supercurrents in Sr<sub>2</sub>RuO<sub>4</sub>," *Phys. Rev. B* 76, 014526(2007).
7. A. Nilsson, L. G. M. Pettersson and J. K. Norskov, Edited Book, *Chemical Bonding on Surfaces*, Elsevier, in press (2007), chapters by A. Nilsson, H. Ogasawara and P. Strasser,
8. S. Koh, M.F. Toney, P. Strasser, "Activity - Stability Relationships of Ordered and Disordered Alloy Phases of Pt<sub>3</sub>Co Electrocatalysts for the Oxygen Reduction Reaction (ORR)", *Electrochimica Acta* 52, 2765-2774 (2007).
9. K. Andersson, G. Ketteler, H. Bluhm, S. Yamamoto, H. Ogasawara, L.G. M. Pettersson, M. Salmeron and A. Nilsson, Bridging the pressure gap in water and hydroxyl chemistry on metal surfaces: Cu(110) *J. Phys. Chem. C* (2007) in press.
10. Koh, S. and Strasser, P. Electrocatalysis on bimetallic surfaces: Modifying catalytic reactivity for oxygen reduction by voltammetric surface de-alloying *J. Am. Chem. Soc.*, 2007 in press.
11. Koh, S.; Yu, C., and Strasser, P. De-alloyed Pt-M Nanoparticle Electrocatalysts for Efficient Electroreduction of Oxygen: Structural-Activity-Stability Relationship *ECS Transactions*, 2007 in press.
12. Liu, Z.; Yu, C.; Rusakova, I.A.; Huang, D.; Strasser, P. Synthesis of Pt<sub>3</sub>Co Alloy Nanocatalyst via Reverse Micelle for Oxygen Reduction Reaction in PEMFCs *Topics in Catalysis*, 2007 submitted
13. Liu, Z.; Koh, S.; Yu, C. and Strasser, P. Synthesis, De-alloying, and ORR Electrocatalysis of PDDA-stabilized Cu-rich Pt alloy nanoparticles *J. Electrochem. Soc.*, 2007 in press.
14. Mani, P.; Srivastava, R.; Strasser, P. Dealloyed Pt-Cu core shell catalysts Nanoparticle Fuel Cell Catalysts *J. Phys. Chem. C*, 2007, submitted.
15. Mani, P.; Srivastava, R.; Yu, C., and Strasser, P. In-situ, in-layer de-alloying of Pt-M intermetallics for high performance PEMFC electrode layers: MEA activity and durability studies, *ECS Transactions*, 2007 in press.
16. S. Koh, C. Yu, P. Mani, R. Srivastava, P. Strasser, Activity of ordered and disordered Pt-Co alloy catalysts for the electroreduction of oxygen: alloy phase distribution effects, *J. Power Source.*, 172, 50-56 (2007).
17. S. Koh, J. Leisch, M.F. Toney, P. Strasser, Structure-activity-stability relationships of Pt-Co alloy electrocatalysts in gas-diffusion electrode layers, *J. Phys. Chem. C*, 111,3744-3752 (2007).
18. S. Koh, M.F. Toney, P. Strasser, Activity-stability relationships of ordered and disordered alloy phases of Pt<sub>75</sub>Co<sub>25</sub> Electrocatalysts for the Oxygen Reduction Reaction (ORR), *Electrochim. Acta*, 52, 2765-2774 (2007).
19. S. Koh, N. Hahn, P. Strasser, Corrosion and ORR activity of Pt alloy electrocatalysts during voltammetric pretreatment, *ECS Transactions*, 3(1), 139-149 (2006).
20. S. Yamamoto, K. Andersson, H. Bluhm, G. Ketteler, D.E. Starr, T. Schiros, H. Ogasawara, L.G.M. Pettersson, M. Salmeron, A. Nilsson, Hydroxyl Induced Wetting of Metals by Water at Near Ambient Conditions, *J. Phys. Chem. C* 111, 7848 (2007).
21. Srivastava, R.; Mani, P., and Strasser, P. Efficient Oxygen Reduction Fuel Cell Electrocatalysis on Voltammetrically De-alloyed Pt-Cu-Co Nanoparticles *Angew. Chem, Int. Ed.*, 46, 1-5 (2007).
22. Strasser, P. Voltammetric dealloying of PtCu bimetallic nanoparticles *ECS Transactions*, 2007 in press.
23. Strasser, P.; Ogasawara, H.; *Surface Electrochemistry in: Chemical Bonding at Surfaces and Interfaces*, A. Nilsson, L G M Peterson, J Norskov, eds., Elsevier, 2007, in press.
24. T. Schiros, L. Å. Näslund, K. Andersson, J. Gyllenpalm, G. S. Karlberg, M. Odelius, H. Ogasawara, L. G. M. Pettersson and A. Nilsson, Structure and Bonding of the Mixed Water-Hydroxyl Phases on Pt(111), *J. Phys. Chem. C* (2007) in press.

25. V. Gowrishankar, SR, Scully, MD, McGehee, Q, Wang, HM, Branz, "Exciton splitting and carrier transport across the amorphous-silicon/polymer solar cell interface" *Applied Physics Letters*, 89, (2006) p. 252102-1-3.
26. S. R. Scully and Michael D. McGehee, "Effects of Optical Interference and Energy Transfer on Exciton Diffusion Length Measurements in Organic Semiconductors", *Journal of Applied Physics*, 100 (2006), 034907-1.
27. Y. Liu, M.A. Summers, S.R. Scully, M.D. McGehee, "Resonance Energy Transfer from Organic Chromophores to Fullerene Molecules," *Journal of Applied Physics* 99 (2006), 093521-4.
28. R.J. Kline, M.D. McGehee, "Morphology and Charge Transport in Conjugated Polymer," *Journal of Macromolecular Science - Polymer Reviews* 46 (2006) p. 27-45. (invited review)
29. John S.Q. Liu and Mark L. Brongersma, "Omni-directional Light Emission via Surface Plasmon-Polaritons," *Appl. Phys. Lett.* 90, 091116-1-3 (2007)
30. A. Kapitulnik, A. Fang, C. Howald, and M. Greven, "STM Studies of Near-Optimal Doped  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+d}$ ," *J. Phys. Chem. Solids* 67, 344-9 (2006).
31. A. Fang, L. Capriotti, D.J. Scalapino, S.A. Kivelson, and A. Kapitulnik, "Gap Inhomogeneity-Induced Electronic States in Superconducting  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+d}$ ," *Phys. Rev. Lett.* 96, 017007 (2006).
32. Jing Xia, P. T. Beyersdorf, M. M. Fejer, and A. Kapitulnik, "Modified Sagnac interferometer for high-sensitivity magneto-optic measurements at cryogenic temperatures," *Appl. Phys. Lett.* 89, 062508 (2006).
33. John A. Robertson, S. A. Kivelson, Eduardo Fradkin, A. Fang, Aharon Kapitulnik, "Distinguishing Patterns of Charge Order: Stripes or Checkerboards," *Phys. Rev. B* 74, 134507 (2006).
34. Jing Xia, Maeno Yoshiteru, Peter T. Beyersdorf, M. M. Fejer, Aharon Kapitulnik, "High Resolution Polar Kerr Effect Measurements of  $\text{Sr}_2\text{RuO}_4$ : Evidence for Broken Time Reversal Symmetry in the Superconducting State," *Phys. Rev. Lett.* 97, 167002 (2006).
35. R. Jamei, J. Robertson, E-A. Kim, A. Fang, A. Kapitulnik, and S.A. Kivelson, "Inferring effective interactions from the local density of states: Application to STM data from  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+d}$ ," *Phys. Rev. B* 74, 174521 (2006).
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39. M. Schultz, L. Klein, J. W. Reiner and M. R. Beasley, Uniaxial magnetocrystalline anisotropy in  $\text{CaRuO}_3$ , *Phys. Rev. B* 73, 85109 (2006)
40. A. Sacchetti, L. Degiorgi, T. Giamarchi, N. Ru and I. R. Fisher, Chemical pressure and hidden one-dimensional behavior in rare earth tri-telluride charge density wave compounds, *Phys. Rev. B.* 74, 125115 (2006)
41. Y. Matsushita, P. Wianicki, A. T. Sommer, T. H. Geballe and I. R. Fisher, Type II superconducting parameters of Tl-doped  $\text{PbTe}$  determined from heat capacity and electronic transport measurements, *Phys. Rev. B.* 74, 134512 (2006)
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44. T.H. Geballe, The Never-Ending Search for High Temperature Superconductivity, *Journal of Superconductivity and Novel Magnetism* 19, 3 (2006)

45. A. Sacchetti, E. Arcangeletti, A. Perucchi, L. Baldassarre, P. Postorino, S. Lupi, N. Ru, I. R. Fisher and L. Degiorgi, Pressure Dependence of the Charge-Density-Wave Gap in Rare-Earth Tritellurides, *Phys. Rev. Lett.* 98, 026401 (2007)
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47. W. Siemons, G. Koster, H. Yamamoto, W. A. Harrison, G. Lucovsky, T. H. Geballe, D. H. A. Blank, and M. R. Beasley, Origin of charge density at LaAlO<sub>3</sub> on SrTiO<sub>3</sub> heterointerfaces: possibility of intrinsic doping, *Phys. Rev. Lett.* 98, 196802 (2007)
48. A. S. Erickson, S. Misra, G. J. Miller, R. R. Gupta, Z. Schlesinger, W. A. Harrison, J. M. Kim, and I. R. Fisher, Ferromagnetism in the Mott Insulator Ba<sub>2</sub>NaOsO<sub>6</sub>, *Phys. Rev. Lett.* 99, 016404 (2007)
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50. J. Stöhr and H. C. Siegmann, *MAGNETISM: FROM FUNDAMENTALS TO NANOSCALE DYNAMICS*, Springer Series in Solid State Sciences 152, Springer, Heidelberg, 2006.
51. H. Ohldag, H. Shi, E. Arenholz, D. Lederman and J. Stöhr, PARALLEL VERSUS ANTIPARALLEL INTERFACIAL COUPLING IN EXCHANGE BIASED Co/FeF<sub>2</sub>, *Phys. Rev. Lett.* 96, 027203 (2006)
52. Y. Acremann, J. P. Strachan, V. Chembrolu, S. D. Andrews, T. Tyliczszak, J.A. Katine, M. J. Carey, B. M. Clemens, H. C. Siegmann, J. Stöhr, TIME RESOLVED IMAGING OF SPIN TRANSFER SWITCHING: BEYOND THE MACROSPIN APPROXIMATION, *Phys. Rev. Lett.* 96, 217202 (2006)
53. O. Hellwig, S. Eisebitt, W. Eberhardt, W. F. Schlotter, J. Lüning and J. Stöhr, MAGNETIC IMAGING WITH SOFT X-RAY SPECTRO-HOLOGRAPHY, *J. Appl. Phys.* 99, 08H307 (2006)
54. W. F. Schlotter, R. Rick, K. Chen, A. Scherz, J. Stöhr, J. Lüning, S. Eisebitt, Ch. Günther, W. Eberhardt, O. Hellwig, and I. McNulty, MULTIPLE REFERENCE FOURIER TRANSFORM HOLOGRAPHY WITH X-RAYS, *Appl. Phys. Lett.* 89, 163112 (2006)
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57. S. J. Gamble, M. H. Burkhardt, H. C. Siegmann, and J. Stöhr, A. Kashuba, R. Allenspach, S. S. P. Parkin, GIANT MAGNETIC ANISOTROPY IN A FERROMAGNET DURING AN ELECTRIC FIELD PULSE, Submitted to PRL
58. Kiyohisa Tanaka, W.S. Lee, D.H. Lu, A. Fujimori, T. Fujii, Risdiana, I. Terasaki, D.J. Scalapino, T.P. Devereaux, Z. Hussain, and Z.X. Shen, Distinct Fermi-momentum dependent energy gaps in deeply underdoped Bi<sub>2</sub>212, *Science* 314, 1910 (2006)
59. T. Yoshida, X.J. Zhou, K. Tanaka, W.L. Yang, Z. Hussain, Z.-X. Shen, A. Fujimori, S. Sahrakorpi, M. Lindroos, R.S. Markiewicz, A. Bansil, Seiki Komiyama, Y. Ando, H. Eisaki, T. Kakeshita, S. Uchida, Doping Evolution of the Underlying Fermi Surface in La<sub>2-x</sub>Sr<sub>x</sub>CuO<sub>4</sub>, *Phys. Rev. B* 74, 224510 (2006)
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63. K.M. Shen and Z.-X. Shen, Doping Evolution of the Cuprate Superconductors from High Resolution ARPES, Book Chapter of Photoemission, edited by S. Huffner, in press
64. W.S. Lee, D.H. Lu, W.L. Yang, X.J. Zhou, K.M. Shen, T. Cuk, C.T. Lin, J.i. Shimoyama, T. Devereaux, Z. Hussain, and Z.-X. Shen, Band Renormalization Effect in Bi2223, Book Chapter celebrating Muller's 80<sup>th</sup> Birthday, in press.
65. W. Meevasana, X.J. Zhou, S. Sahrakorpi, W.S. Lee, W.L. Yang, N. Mannella, T. Yoshida, Y.L. Chen, K. Tanaka, R.H. He, Hsin Lin, S. Komiya, Y. Ando, F. Zhou, W.X. Ti, J.W. Xiong, Z.X. Zhao, T. Sasagawa, T. Kakeshita, K. Fujita, S. Uchida, H. Eisaki, A. Fujimori, Z. Hussain, R.S. Markiewicz, A. Bansil, N. Nagaosa, J. Zaanen, T.P. Devereaux, and Z. X. Shen, The hierarchy of three many-body interaction scales in high-temperature superconductors, *Phys. Rev. B* 75, 174506 (2007)
66. W.S. Lee, S. Johnston, T.P. Devereaux, and Z.-X. Shen, Aspects of Electron-Phonon Self-Energy Revealed from Angle-Resolved Photoemission Spectroscopy, *Phys. Rev. B*, 75, 195116 (2007).
67. W.L. Yang, J.D. Fabbri, T.M. Willey, J.R.I. Lee, J.E. Dahl, R.M.C. Carlson, A.A. Fokin, P.R. Schreiner, N. Mannella, K. Tanaka, X.J. Zhou, T. van Buuren, M.A. Kelly, N.A. Meloshi, Z. Hussain, and Z.-X. Shen, Unusual Electron Emission from Self-Assembled Monolayers of Functionalized Diamondoids, *Science* 316, 1460 (2007)
68. G.A. Wigger, F. Baumberger, Z.-X. Shen, T. Jeong, W.E. Pickett, S. Maguilon, and Z. Fisk, An Electronic Structure Study: The Case of the Mixed-Valence Heavy Fermion YbRh<sub>2</sub>Si<sub>2</sub>, *Phys. Rev. B*, 76, 035106 (2007).
69. K.M. Shen, N. Kikugawa, C. Bergemann, L. Balicas, F. Baumberger, W. Meevasana, N.J.C. Ingle, Y. Maeno, Z.-X. Shen, and A.P. Mackenzie, Evolution of the Fermi Surface and Quasiparticle Renormalization through a van Hove Singularity in the Correlated Sr<sub>2-y</sub>La<sub>y</sub>RuO<sub>4</sub>, *Phys. Rev. Lett.*, accepted.
70. K. Lai, M.B. Ji, N. Leindecker, M. Kelly and Z.-X. Shen, AMF- Compatible Near-Field Scanning Microwave Microscope With Separated Excitation and Sensing Probes, *Review of Scientific Instrument*, 78, 063702 (2007)
71. Yulin Chen; Iyo, A.; Wanli Yang; Xingjiang Zhou; Donghui Lu; Eisaki, H.; Devereaux, TP; Hussain, Z.; Shen, ZX, Anomalous Fermi-surface dependent pairing in a self-doped high-T<sub>c</sub> superconductor, *Physical Review Letters*; 8 Dec. 2006; vol.97, no.23, p.236401/1-4
72. W.S. Lee, K. Tanaka, D.H. Lu, T. Sasagawa, N. Nagaosa, T.P. Devereaux, Z. Hussain, and Z.X. Shen, Abrupt Onset of Second Energy Gap at Superconducting Transition along the Fermi Arc of Underdoped Bi2212, *Nature*, accepted
73. Xie, BP; Yang, K.; Shen, DW; Zhao, JF; Ou, HW; Wei, J.; Gu, SY; Arita, M.; Qiao, S.; Namatame, H.; et al., High-energy scale revival and giant kink in the dispersion of a cuprate superconductor, *Phys. Rev. Lett* 98, 147001/1-4 (2007)

### *Invited Presentations*

Beasley, Malcolm

1. LaAlO<sub>3</sub> – SrTiO<sub>3</sub> interfaces, ITRS-ERM Correlated Electron Materials Workshop, Stanford, 2006
2. Spectroscopic and Electrical Studies of LaAlO<sub>3</sub>-SrTiO<sub>3</sub> Hetero-Interfaces 34th Conference on the Physics and Chemistry of Semiconductor Interfaces, Salt Lake City 2007
3. Transport properties observed at hetero-interfaces of LaAlO<sub>3</sub> on SrTiO<sub>3</sub>; intrinsic or extrinsic? Symposium L: Functional Interfaces in Oxides MRS Spring meeting, San Francisco, 2007
4. What Is The Temperature At The Surface Of A Growing Thin Film? Symposium U: Advances in In Situ Characterization of Film Growth and Interface Processes MRS Fall, Boston, 2006

Brongersma, Mark

1. Briefing of National Academies Committee on Nanophotonics Accessibility and Applicability, January 2007.
2. DARPA/MTO Components from Metamaterials Workshop, May 2-3, 2007.

3. Nanometa Conference, Seefeld Austria, January 2007.
4. SPIE Annual Meeting, San Diego, August 2007.
5. Third International Conference on Surface Plasmon Photonics, Dyon, France 2007.

Fisher, Ian

1. 15th International Conference on Crystal Growth, Salt Lake City, August 12-17 2007

Goldhaber-Gordon, David

1. Condensed matter seminar at Sandia National Lab (Center for Integrative Nanotechnologies), May 2007

Kapitulnik, Aharon

1. A.I. Larkin Memorial Conference, Chernogolovka, Russia, June 2007
2. APS March Meeting, Denver CO (20 years to the Woodstock of physics), March 2007
3. Caltech, Pasadena, CA, Condensed Matter Physics Seminar, November 2006
4. DoE workshop on "atomic-scale microscopy and spectroscopy," Washington DC, October 2006
5. Florida State University, Tallahassee, FL, Physics colloquium, November 2006
6. International Conference on Spectroscopies of Novel Superconductors (SNS2007), Sendai Japan, August 2007
7. MTI-2006, Argonne National Laboratory, IL, November 2006
8. Stanford University, Physics/Applied Physics colloquium, October 2006
9. Superconductivity and Magnetism in the Perovskites and other Novel Materials, Kefar Hamaccabiah, Ramat-Gan, ISRAEL, May 2007
10. Tel Aviv University, Israel, Condensed Matter Physics Seminar, March 2007
11. The International Conference on Strongly Correlated Electron Systems, Houston, USA, May 2007
12. U. of California, Los Angeles, Physics colloquium, June 2007
13. U. of Illinois at Urbana Champaign, IL, Condensed Matter Physics Seminar, April 2007
14. U. of Minnesota, MN, Condensed Matter Physics Seminar, April 2007
15. U.C. Riverside, CA, Physics colloquium, January 2007
16. UC. Santa Cruz, CA, Condensed Matter Physics Seminar, February 2007

Manoharan, Hari

1. Applied Materials Science Colloquium, Sunnyvale, CA, April, 19, 2007
2. Chinese American Frontiers of Science, Irvine, CA, October 26, 2006
3. Colloquium, Lawrence Berkeley National Laboratory, Berkeley, CA, May, 16, 2007
4. Frontiers of Nanoscale Science and Technology, Tokyo, Japan, March 27, 2007
5. International Conf. on Nanoscience and Technology, Stockholm, Sweden, July 1, 2007
6. Physics and Nano Colloquium, Los Alamos National Laboratory, Los Alamos, NM, May 18, 2007
7. Physics Colloquium, UIC, Chicago, IL, February 13, 2007

McGehee, Mike

1. Advancing Solar Energy Conversion Devices Through Nanotechnology and Nanomanufacturing Workshop, Amherst, MA, May 18, 2007
2. American Chemical Society Meeting, Chicago, IL, March 25-29, 2007
3. American Chemical Society Meeting, Chicago, IL, March 25-29, 2007

4. American Institute of Chemical Engineers National Meeting, San Francisco, CA, November 13-17, 2006
5. European Materials Research Society Meeting, Strasbourg, France, May 28-31, 2007
6. Gordon Conference on the Chemistry of Electronic Materials, Mt. Holyoke, MA, July 22-26, 2007
7. Gordon Research Conference on Renewable Energy: Solar Fuels, Ventura, CA, January 22-26, 2007
8. International Conference on Molecular Photonics: Interaction of Light with Nanostructured Materials, Friday Harbor, WA, August 28-31, 2007
9. Materials Research Society Meeting, San Francisco, CA, April 9-13, 2007
10. Nanotech 2007, Santa Clara, CA, May 20-24, 2007

## Melosh, Nick

1. Molecular Plasmon Sensing and Dynamic Bio-interfaces, Berkeley/LBL colloquium, June 13, 2007
2. Plasmonic-Molecular Electronic Integration, Electronic Materials Symposium, Santa Clara, April 27, 2007
3. Plasmonic-Molecular Electronic Integration, Nanomaterials for Defense Applications, DARPA Symposium, San Diego, April 26, 2007
4. Bio-electronic Interfaces, Stanford University, Epithelial Biology Seminar, March 30, 2007
5. Plasmonic-Molecular Electronic Integration and Bio-interfaces, UCSD Colloquium, May 18, 2007

## Moler, Kam

1. Quantum Materials, Canadian Institute for Advanced Research, October 19, 2006, Vancouver
2. Knowing the Nanoscale, Exploratorium, November 15, 2006, San Francisco
3. 3D Measurements at the Nanoscale, NSF Nanoscale Science and Engineering Meeting, December 4, 2006, Arlington, VA
4. Nanomagnetic Imaging, California NanoSystems Institute, January 23, 2007, UCLA
5. Condensed Matter Physics Seminar, February 7, 2007, Yale
6. Nanomagnetic Metrology, International Conference on Frontiers of Characterization and Metrology for Nanoelectronics, March 28, 2007, Gaithersburg, Maryland
7. Quantum Mechanics of Nanostructures, Keynote, Annual Meeting of Northern California and Nevada Chapter of the American Association of Physics Teachers, May 5, 2007, Stanford, CA
8. Experimental Upper Limits on Spontaneous Currents in Sr<sub>2</sub>RuO<sub>4</sub>, Fluctuations2007, June 14, 2007, Nazareth, Israel
9. Condensed Matter Physics Seminar, June 20, 2007, Weizmann, Israel
10. Nanomagnetic Metrology, DARPA/DSRC summer conference, July 18, 2007, Santa Cruz, CA

## Nilsson, Anders

1. Conference on Physics, Chemistry and Biology of Water, Vermont (October 2006)
2. Max Planck Society Winterschool, Ringberg Castle, Bavaria, Germany (February 2007)
3. 17<sup>th</sup> International Vacuum Congress, Stockholm, Sweden (July 2007)
4. SLAC-DESY workshop on FEL science, Hamburg, Germany (June 2007)
5. DOE Contractor Meeting on the Hydrogen Fuel Initiative, Washington (May 2007)

## Ogasawara, Hirohito

1. Special Symposium: The Future of X-ray Science, September 28-29, 2007 SLAC, Menlo Park, CA

## Shen, Z.X.

1. 10<sup>th</sup> Anniversary Workshop of APCTP, Strongly Correlated Electron Systems, Pohang, Korea, November 2-6, 2006
2. CREST Workshop on Charge Dynamics in High Temperature Superconductors, Tokyo, Japan, February 23-25, 2007
3. The Physical Society of Japan 2007 Spring Meeting, Kagoshima, Japan, March 19-22, 2007
4. KITPC Quantum Phases of Matter, Beijing, China, June 15-27, 2007
5. Conference on Exploring Quantum Matter: Visions and Opportunities, St. Andrews, Scotland, July 1-3, 2007
6. 17<sup>th</sup> International Vacuum Congress, 13<sup>th</sup> International Conference on Surface Science (IVC-17/ICSS-13) and International Conference on Nano Science and Technology (ICN+T 2007), Stockholm, Sweden, July 3-5, 2007
7. Coherence and Incoherence in Strongly Correlated Systems, Rome, Italy, July 5-8, 2007.
8. 15<sup>th</sup> International Conference on Vacuum Ultraviolet Radiation Physics, Berlin, Germany, July 29-August 3, 2007
9. The 8<sup>th</sup> International Conference on Spectroscopies in Novel Superconductors (SNS2007), Sendai, Japan, August 19-27, 2007
10. Gordon Conference on Superconductivity, Les Diablerets, Switzerland, September 8-15, 2007
11. LCLS/SSRL Users Meeting , Menlo Park, CA, September 28-October 3, 2007

## Stohr, Jo

1. Annual APS March Meeting, Denver, CO (March 2007)
2. ESRF Users' meeting, Grenoble, France (February 2007)
3. IEEE meeting Northern California Chapter, San Jose, CA (April 2007)
4. Meeting of the European Council for soft X-Ray FELs, Berlin, Germany (May 2007)
5. Special International Symposium, FA Karlsruhe, Germany (March 2007)
6. US-France workshop on Nanoscience, Argonne Nat. Laboratory (June 2007)

## Strasser, Peter

1. 6th International Conference on Materials Processing for Properties and Performance (MP3-2007), Beijing, China, 9/14 – 9/16/2007
2. 2nd Energy Nanotechnology International Conference, Santa Clara, CA, 9/5 – 9/7/2007
3. North American Catalysis Society Meeting (NAM), Houston, TX, 6/17 – 6/20/2007
4. Department of Energy, annual contractor meeting, Arlington, VA, 5/14 – 5/18 2007
5. American Chemical Society, annual meeting, March 24-29, 2007 Chicago
6. American Institute of Chemical Engineering, Annual fall meeting, San Francisco, 11/12–17 2006
7. Colloquium Case Western Reserve University, Department of Chemical Engineering, Cleveland, OH 10/5/2006
8. Colloquium University of Kansas, Department of Chemical Engineering, KS 5/1/2007
9. NASCRE-2 meeting, Houston, TX , 2/4–7/2007
10. The Electrochemical Society, annual fall meeting, Cancun, MX, 10/29–11/3 2006
11. The Electrochemical Society, annual spring meeting, Chicago, IL, 5/6–10 2007
12. Workshop on Regenerative Fuel Cells, NASA Johnson Space Center, Houston, TX ,2/9/2007

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**F • BABAR**

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*Invited Talks*

1. U. Wienands, "Status of the PEP-II Collider," PAC 2007, Albuquerque, NM, June 2007.
2. M. Sullivan, "e+e- Factories," PAC 2007, Albuquerque, NM, June 2007.
3. A. Novokhatski, "Overall HOM Measurements at High Beam Currents in the PEP-II SLAC B-Factory," PAC 2007, Albuquerque, NM, June 2007.

*Contributed Papers*

1. J. Seeman, et al, "PEP-II at  $1.2 \times 10^{34} / \text{cm}^2 / \text{s}$  Luminosity," PAC 2007, Albuquerque, NM, June 2007.
2. J. Seeman, et al, "Super-B Factory using Low Emittance Storage Rings and large Crossing Angle," PAC 2007, Albuquerque, NM, June 2007.
3. Y. Ohnishi, et al, "Low Emittance Lattices and Final Focus design for the SuperB project," PAC 2007, Albuquerque, NM, June 2007.
4. M. Sullivan, et al, "Interaction Region design for a Super-B Factory," PAC 2007, Albuquerque, NM, June 2007.
5. U. Wienands, et al, "A Transverse Beam Instability in the PEP-II HER Induced by Discharges in the Vacuum System," PAC 2007, Albuquerque, NM, June 2007.
6. F.-J. Decker, et al, "Significant Lifetime and Background Improvements in PEP-II by Reducing the 3<sup>rd</sup> Order Chromaticity in LER with Orbit Bumps," PAC 2007, Albuquerque, NM, June 2007.
7. A. Fisher, et al, "Commissioning the Fast Luminosity Dither for PEP-II," PAC 2007, Albuquerque, NM, June 2007.
8. A. Novokhatski, et al, "Modeling of the Sparks in Q2-bellows of the PEP-II SLAC B-factory," PAC 2007, Albuquerque, NM, June 2007.
9. A. Novokhatski, et al, "A New Q2-bellows Absorber for the PEP-II SLAC B-Factory," PAC 2007, Albuquerque, NM, June 2007.
10. G. Yocky, et al, "Optimization of Chromatic Optics Near the Half Integer in PEP-II," PAC 2007, Albuquerque, NM, June 2007.
11. K. Bane, et al, "Impedances and Single Bunch Instability Calculations for the ILC Damping Rings," PAC 2007, Albuquerque, NM, June 2007.
12. A. Novokhatski, et al, "High Current Effects in the PEP-II SLAC B-Factory," PAC 2007, Albuquerque, NM, June 2007.
13. A. Novokhatski, "Numerical Modeling of RF-Focusing Using the Fokker-Plank Equation," PAC 2007, Albuquerque, NM, June 2007.
14. J. Corbett, et al, "Bunch Length Measurements in SPEAR3," PAC 2007, Albuquerque, NM, June 2007.
15. W. Wittmer, et al, "Detection of Instrumental Drifts in the PEP-II LER BPM System," PAC 2007, Albuquerque, NM, June 2007.
16. F.-J. Decker, et al, "Lowering of the Vertical Emittance in the LER Ring of PEP-II," PAC 2007, Albuquerque, NM, June 2007.
17. Y. Yan, et al, "Validation of PEP-II Resonantly Excited Turn-by-Turn BPM Data," PAC 2007, Albuquerque, NM, June 2007.
18. J. Seeman, "Super-B Costing Criteria," Super B Workshop, SLAC, May 2007.

## G • Astrophysics Program at the KAVLI Institute

1. Calibration of the Camera of the LSST (SULI paper). Andy Scacco (Colorado U. & SLAC) . SLAC-TN-07-009, Aug 21, 2007. 26pp. Partial Fulfillment of the Sci. Undergrad. Lab. Internship (SULI). Published in Submitted to Journal of Undergraduate Studies.
2. A New Survey for Giant Arcs. Joseph F. Hennawi et al. SLAC-PUB-12192, Oct 2006. 19pp. Submitted to Astron. J. e-Print: astro-ph/0610061
3. Evidence for the importance of resonance scattering in X-ray emission line profiles of the O star zeta Puppis. Maurice A. Leutenegger (Columbia U., Astron. Astrophys.) , Stanley P. Owocki (Bartol Research Inst.) , Steven M. Kahn (KIPAC, Menlo Park) , Frits B.S. Paerels (Columbia U., Astron. Astrophys.) . SLAC-PUB-12152, Oct 2006. 29pp. Submitted to Astrophys. J. e-Print: astro-ph/0610181
4. The Structure and Dynamics of GRB Jets. Jonathan Granot (KIPAC, Menlo Park) . SLAC-PUB-12176, Oct 2006. 27pp. Invited review at Triggering Relativistic Jets, Cozumel, Quintana Roo, Mexico, 28 Mar – 1 Apr 2005. Submitted to Rev.Mex.Astron.Astrofis. e-Print: astro-ph/0610379
5. Can Astrophysical Gamma Ray Sources Mimic Dark Matter Annihilation in Galactic Satellites? Edward A. Baltz (KIPAC, Menlo Park) , James E. Taylor (Waterloo U.) , Lawrence L. Wai (KIPAC, Menlo Park) . SLAC-PUB-12173, Oct 2006. 4pp. Submitted to Astrophys.J. e-Print: astro-ph/0610731
6. Detailed Structure of the X-ray Jet in 4C 19.44 (=PKS1354+195). Daniel A. Schwartz et al. SLAC-PUB-12178, Oct 2006. 2pp. To appear in the proceedings of IAU Symposium 238: Black Holes: From Stars to Galaxies, Prague, Czech Republic, 21-25 Aug 2006. Submitted to IAU Symp. e-Print: astro-ph/0610755
7. Proceedings of the 33rd SLAC Summer Institute: Gravity in the Quantum World and the Cosmos (SSI 05). Joanne L. Hewett, (ed.), John Jaros, (ed.), Tsuneyoshi Kamae, (ed.), Charles Prescott, (ed.) (SLAC) . SLAC-R-819, Oct 16, 2006. Published in eConf C0507252
8. Normal Modes of Black Hole Accretion Disks. Manuel Ortega-Rodriguez (Stanford U., Appl. Phys. Dept. & Costa Rica U.) , Alexander S. Silbergleit (Stanford U., HEPL) , Robert V. Wagoner (Stanford U., Phys. Dept. & KIPAC, Menlo Park) . SLAC-PUB-12186, Nov 2006. 51pp. e-Print: astro-ph/0611101
9. Observations of the Askaryan effect in ice. By ANITA Collaboration (P.W. Gorham et al.). SLAC-PUB-12286, Nov 2006. 4pp. Submitted to Phys.Rev.Lett. e-Print: hep-ex/0611008
10. GLAST Status and Application to Microquasars. Richard Dubois (SLAC) . SLAC-PUB-12174, Nov 2006. 5pp. To appear in the proceedings of 6th Microquasar Workshop: Microquasars and Beyond, Como, Italy, 18-22 Sep 2006. Submitted to PoS e-Print: astro-ph/0611364
11. The VLBA Imaging and Polarimetry Survey at 5-GHz. J.F. Helmboldt et al. SLAC-PUB-12214, Nov 2006. 36pp. Submitted to Astrophys.J. e-Print: astro-ph/0611459
12. Search for Small Trans-Neptunian Objects by the TAOS Project. Wen-Ping Chen et al. SLAC-PUB-12216, Nov 2006. 4pp. To appear in the proceedings of IAU Symposium 236: Near Earth Objects, our Celestial Neighbors: Opportunity and Risk, Prague, Czech Republic, 14-18 Aug 2006. Submitted to IAU Symp. e-Print: astro-ph/0611527
13. XMM-Newton observations of HESS J1813-178 reveal a composite Supernova remnant. Stefan Funk et al. SLAC-PUB-12209, Nov 2006. Submitted to Astron.Astrophys. e-Print: astro-ph/0611646
14. Dark energy and the hierarchy problem. Pisin Chen (KIPAC, Menlo Park & SLAC) . SLAC-PUB-12245, Nov 2006. 6pp. To appear in the proceedings of 7th UCLA Symposium on Sources and Detection of Dark Matter and Dark Energy in the Universe, Marina de Rey, California, 22-24 Feb 2006. e-Print: hep-ph/0611378
15. Galactic Variable Sky with EGRET and GLAST. S.W. Digel (SLAC) . SLAC-PUB-12218, Nov 28, 2006. 9pp. Invited talk at 4th Workshop on Science with the New Generation of High Energy Gamma-Ray Experiments, Portoferraio, Isola d'Elba, Italy, 20-22 Jun 2006.
16. Application of a XMM-Newton EPIC Monte Carlo to analysis and interpretation of data for Abell 1689, RXJ0658-55 and the Centaurus clusters of galaxies. Karl E. Andersson (Stockholm U. & SLAC) , J.R.

- Peterson (Purdue U. & KIPAC, Menlo Park) , G.M. Madejski (SLAC & KIPAC, Menlo Park) . SLAC-PUB-12460, Dec 2006. 18pp. Submitted to *Astrophys.J.* e-Print: astro-ph/0612038
17. The Hadronic models for cosmic ray physics: The FLUKA code solutions. G. Battistoni et al. SLAC-PUB-12333, Dec 2006. 8pp. Invited talk at 14th International Symposium on Very High Energy Cosmic Ray Interactions (ISVHECRI 2006), Weihai, China, 15-22 Aug 2006. e-Print: hep-ph/0612075
  18. Numerical simulations of the metallicity distribution in dwarf spheroidal galaxies. Emanuele Ripamonti, E. Tolstoy, A. Helmi, G. Battaglia (Kapteyn Astron. Inst., Groningen) , T. Abel (KIPAC, Menlo Park) . SLAC-PUB-12260, Dec 2006. 6pp. Prepared for CRAL Conference Series 1: Chemodynamics: From First Stars to Local Galaxies, Lyon, France, 10-14 Jul 2006. e-Print: astro-ph/0612210
  19. 3D GRMHD and GRPIC Simulations of Disk-Jet Coupling and Emission. Ken-Ichi Nishikawa, Y. Mizuno (USRA, Huntsville) , M. Watson (Fisk U.) , P. Hardee (Alabama U.) , S. Fuerst (KIPAC, Menlo Park) , K. Wu (Mullard Space Sci. Lab.) , G.J. Fishman (NASA, Marshall) . SLAC-PUB-12268, Dec 2006. 3pp. Prepared for 11th Marcel Grossmann Meeting on Recent Developments in Theoretical and Experimental General Relativity, Gravitation, and Relativistic Field Theories, Berlin, Germany, 23-29 Jul 2006. e-Print: astro-ph/0612328
  20. Panchromatic Views of Large-scale Extragalactic Jets. C.C. Cheung (KIPAC, Menlo Park) . SLAC-PUB-12526, Dec 2006. To appear in the proceedings of The Central Engine of Active Galactic Nuclei, Xi'an, China, 16-21 Oct 2006. Submitted to ASP Conf.Ser. e-Print: astro-ph/0612372
  21. FIRST Winged and X-shaped Radio Source Candidates. C.C. Cheung (KIPAC, Menlo Park) , A. Springmann (KIPAC, Menlo Park & Wellesley Coll.) . SLAC-PUB-12536, Dec 2006. To appear in the proceedings of The Central Engine of Active Galactic Nuclei, Xi'an, China, 16-21 Oct 2006. Submitted to ASP Conf.Ser. e-Print: astro-ph/0612398
  22. The flat decay phase in the early X-ray afterglows of Swift GRBs. Jonathan Granot (KIPAC, Menlo Park) . SLAC-PUB-12418, Dec 2006. To appear in the proceedings of Swift and GRBs: Unveiling the Relativistic Universe, San Servolo, Venice, 5-9 Jun 2006. Submitted to *Nuovo Cim.* e-Print: astro-ph/0612516
  23. Probing the Disk-jet Connection of the Radio Galaxy 3C120 Observed with Suzaku. Jun Kataoka et al. SLAC-PUB-12211, Dec 2006. 19pp. Submitted to *Publ.Astron.Soc.Jap.* e-Print: astro-ph/0612754
  24. Observational Constraints on the Nature of the Dark Energy: First Cosmological Results from the ESSENCE Supernova Survey. W.Michael Wood-Vasey et al. SLAC-PUB-12281, Jan 2007. 82pp. Submitted to *Astrophys.J.* e-Print: astro-ph/0701041
  25. The ESSENCE Supernova Survey: Survey Optimization, Observations, and Supernova Photometry. Gajus Miknaitis et al. SLAC-PUB-12282, Jan 2007. Submitted to *Astrophys.J.* e-Print: astro-ph/0701043
  26. Fallback and Black Hole Production in Massive Stars. Wei-Qun Zhang (KIPAC, Menlo Park) , S.E. Woosley (UC, Santa Cruz) , A. Heger (UC, Santa Cruz & Los Alamos) . SLAC-PUB-12276, LA-UR-06-8688, Jan 2007. Submitted to *Astrophys.J.* e-Print: astro-ph/0701083
  27. XMM-Newton observations reveal the X-ray counterpart of the very-high-energy gamma-ray source HESSJ1640-465. S. Funk, J.A. Hinton, G. Puehlhofer, F.A. Aharonian, W. Hofmann, O. Reimer, S. Wagner . SLAC-PUB-12295, Jan 2007. \* Brief entry \*. Submitted to *Astrophys.J.* e-Print: astro-ph/0701166
  28. FIRST Winged and X-shaped Radio Source Candidates. C.C. Cheung (NRAO, Socorro & KIPAC, Menlo Park) . SLAC-PUB-12310, AJ-MS-05537, Jan 2007. 20pp. Submitted to *Astron.J.* e-Print: astro-ph/0701278
  29. Virialization Heating in Galaxy Formation. Peng Wang, Tom Abel (KIPAC, Menlo Park & SLAC) . SLAC-PUB-12304, Jan 2007. 5pp. e-Print: astro-ph/0701363
  30. VHE Gamma-ray supernova remnants. Stefan Funk (KIPAC, Menlo Park) . SLAC-PUB-12307, Jan 2007. To appear in the proceedings of 36th COSPAR Scientific Assembly, Beijing, China, 16-23 Jul 2006. Submitted to *Adv.Space Res.* e-Print: astro-ph/0701471

31. Scrutinizing Exotic Cosmological Models Using ESSENCE Supernova Data Combined with Other Cosmological Probes. Tamara M. Davis et al. SLAC-PUB-12320, Jan 2007. 9pp. Submitted to *Astrophys.J.* e-Print: astro-ph/0701510
32. The Electron Energy Distribution in the Hotspots of Cygnus A: Filling the Gap with the Spitzer Space Telescope. L. Stawarz (KIPAC, Menlo Park & Jagiellonian U., Astron. Observ.) , C.C. Cheung (KIPAC, Menlo Park) , D.E. Harris (Harvard-Smithsonian Ctr. Astrophys.) , M. Ostrowski (Jagiellonian U., Astron. Observ.) . SLAC-PUB-12311, Jan 2007. 28pp. Submitted to *Astrophys.J.* e-Print: astro-ph/0701568
33. The search for Milky Way halo substructure WIMP annihilations using the GLAST LAT. By GLAST LAT Collaboration (Lawrence Wai for the collaboration). SLAC-PUB-12339, Jan 2007. Talk given at IDM 2006: 6th International Workshop on the Identification of Dark Matter, Island of Rhodes, Greece, 11-16 Sep 2006. e-Print: astro-ph/0701885
34. Improved Distances to Type Ia Supernovae with Multicolor Light Curve Shapes: MLCS2k2. Saurabh Jha (KIPAC, Menlo Park) , Adam G. Riess (Baltimore, Space Telescope Sci.) , Robert P. Kirshner (Harvard-Smithsonian Ctr. Astrophys.) . SLAC-PUB-12273, Jan 5, 2007. 66pp. Submitted to *Astrophys.J.*
35. Relativistic Effects on Reflection X-ray Spectra of AGN. Khee-Gan Lee (University Coll. London) , Steven V. Fuerst (KIPAC, Menlo Park) , Graziella Brandwardi-Raymond, Kinwah Wu, Oliver Crowley (University Coll. London) . SLAC-PUB-12271, Jan 5, 2007. 10pp.
36. General relativistic radiative transfer and general relativistic mhd simulations of accretion and outflows of black holes. Steven V. Fuerst (KIPAC, Menlo Park) , Yosuke Mizuno (USRA, Huntsville) , Ken-Ichi Nishikawa (USRA, Huntsville & Alabama U., Huntsville) , Kinwah Wu (Mullard Space Sci. Lab.) . SLAC-PUB-12270, Jan 5, 2007. 10pp. Submitted to *Astrophys.J.*
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## J • Accelerator Research

### Plasma Acceleration and E-167

#### *Peer-reviewed Publications*

1. Ian Blumenfeld *et al*, "Energy Doubling of 42 GeV Electrons in a Metre Scale Plasma Wakefield Accelerator," *Nature* **445**, 741-744 (2007).
2. E. Oz *et al*, "Ionization Induced Electron Trapping in Ultra-relativistic Plasma Wakes," *Physical Review Letters* **98**, 084801 (2007).
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#### *Theses*

1. Erdem Oz, Ph.D. USC, "Physics of Particle Trapping in Ultrarelativistic Plasma Wakes" 2007.

#### *Invited Presentations*

1. *Recent Advances in Plasma Acceleration* presented by Mark Hogan for the SLAC Colloquium Series, SLAC (2007).
2. *Advanced Accelerator Technology* presented by Mark Hogan at the XXIII International Symposium on Lepton-Photon Interactions, Daegu, Korea (2007).

3. *Results of the Energy Doubler Experiment at SLAC* presented by Mark Hogan at the 2007 Particle Accelerator Conference, Albuquerque, NM (2007).
4. *Advanced Accelerator Research* presented by Rasmus Ischebeck, Stanford Collider Seminar at Stanford, California (2007).
5. *Accelerators Beyond LHC and ILC* presented by Rasmus Ischebeck for the Colloquium of the Max-Planck-Institut für Physik (Werner-Heisenberg-Institut) in Munich, Germany (2007).
6. *Energy Doubling of 42 GeV Electrons* presented by Rasmus Ischebeck for a Seminar at the Max-Planck-Institut für Quantenoptik in Munich, Germany (2007).
7. *Energy Doubling of 42 GeV Electrons in a Plasma Wakefield Accelerator* presented by Rasmus Ischebeck in the Accelerator Seminar at Paul-Scherrer-Institut, Villigen, Switzerland (2007).

### Surface and Materials Science

1. *Summary of SLAC's SEY Measurement On Flat Accelerator Wall Materials*, F. Le Pimpec (PSI, Villigen), R.E. Kirby, F.K. King, M. Pivi (SLAC) . SLAC-PUB-12541, Jun 8, 2007. 8pp. Presented at International Workshop on Electron-Cloud Effects (ELOUD07), Daegu, Korea, 9-12 Apr 2007.
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### LARP

#### Conferences and Workshops

1. 2007-09-03, Eric Doyle, Workshop on Materials for Collimators and Beam Absorbers, CERN, Geneva, Switzerland, "Phase II Collimators for the LHC Upgrade at SLAC-Material Issues."
2. 2007-06-05, Thomas Markiewicz, LARP DOE Review, Fermilab, Batavia, IL, "LARP Collimation Task Status."
3. 2007-04-18, Thomas Markiewicz, LARP Collaboration Meeting, Fermilab, Batavia, IL, "Phase II Collimators."
4. 2006-10-27, Thomas Markiewicz, LARP Collaboration Meeting, BNL, Upton, NY, "Collimation Task Summary."
5. 2006-10-26, Thomas Markiewicz, LARP Collaboration Meeting, BNL, Upton, NY, "Phase II Collimators"

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**L - Scientific Computing**

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**ACD****Conferences and Workshops**

1. Arno Candel, Parallel Higher-Order Finite Element Method for Accurate Field Computations in Wakefield and PIC Simulations, 9th International Computational Accelerator Physics Conference, Chamonix Mont-Blanc, France, Oct. 2-6, 2006.
2. Andreas Kabel, Accelerating Cavity Design for the International Linear Collider, 9th International Computational Accelerator Physics Conference, Chamonix Mont-Blanc, France, Oct. 2-6, 2006.
3. Zenghai Li, Towards Simulation of Electromagnetics and Beam Physics at the Petascale, 2007 Particle Accelerator Conference, 2007.
4. Lie-Quan Lee, Finite-Element Electromagnetic Simulations for Particle Accelerators at Petascale, CScADS Workshop on Libraries and Algorithms for Petascale Applications, Snowbird, Utah, July 30th - August 2nd, 2007.
5. Volkan Akcelik, Shape Determination for Real and Complex Maxwell Eigenvalue Problems, Minisymposium on PDE-Constrained Optimization in Computational Science and Engineering, 2007 SIAM Conference on Computational Science and Engineering, Costa Mesa, California, February 19-23, 2007.
6. Lie-Quan Lee, Minisymposium on Eigenvalue Computation, Solving Nonlinear Eigenvalue Problems for International Linear Collider, 2007 SIAM Conference on Computational Science and Engineering, Costa Mesa, California, February 19-23, 2007.
7. Lie-Quan Lee, On Reducing Memory Usage of the Simulations Using Sparse Direct Solvers, , 2007 SIAM Conference on Computational Science and Engineering, Costa Mesa, California, February 19-23, 2007.
8. Andreas Kabel, What can we learn from Beam-Beam Proton Machines Simulations? LARP Beam-Beam Compensation Workshop, 2007.

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**Conferences and Workshops**

1. A. Krasnykh, *Employment of Second Order Ruled Surfaces in Design of Sheet Beam Guns*, SLAC-PUB-12277, Presented at IEEE/APS Particle Accelerator Conference 2007, 6/25/2007-6/29/2007, Albuquerque, NM, USA (see JACoW for Conference Record.)
2. A. Krasnykh, *e-/e+ Accelerating Structure with Cyclic Variation of Azimuth Asymmetry*, SLAC-PUB-12275, Presented at IEEE/APS Particle Accelerator Conference 2007, 6/25/2007-6/29/2007, Albuquerque, NM, USA (see JACoW for Conference Record.)
3. A. Krasnykh, *A Coreless Approach for on/off Marx Type Modulators*, SLAC-PUB-12278, Contributed to the Joint 34th IEEE International Conference on Plasma Science and the 16th IEEE International Pulsed Power Conference, 6/17/2007-6/22/2007, Albuquerque, NM, USA
4. A. Krasnykh, *A Topology of On/Off Marx Modulator with Protection of Load and Solid State Switches*, SLAC-PUB-12279, Contributed to the Joint 34th IEEE International Conference on Plasma Science and the 16th IEEE International Pulsed Power Conference, 6/17/2007-6/22/2007, Albuquerque, NM, USA
5. R. Akre, *LCLS LLRF Upgrades to the SLAC Linac*, SLAC-PUB-12843, Oct 4, 2007. 4pp. Contributed to Particle Accelerator Conference (PAC 07), Albuquerque, New Mexico, 25-29 Jun 2007. (Also on JACoW HEP site)