MPA MaterialsMatter
February 2011

INSIDE

2 From David's Desk

3 Postdoctoral researchers receive awards at Los Alamos Postdoc Research Day

Tunable ultrafast extreme ultraviolet source for photoemission spectroscopy

4 Pressure-induced superconductivity near the antiferromagnetic quantum critical point of $CePt_2In_7$

5 Time-resolved three-dimensional molecular tracking in live cells

6 McCleskey chosen as Materials Chemistry group leader

7 From Cathy's desk

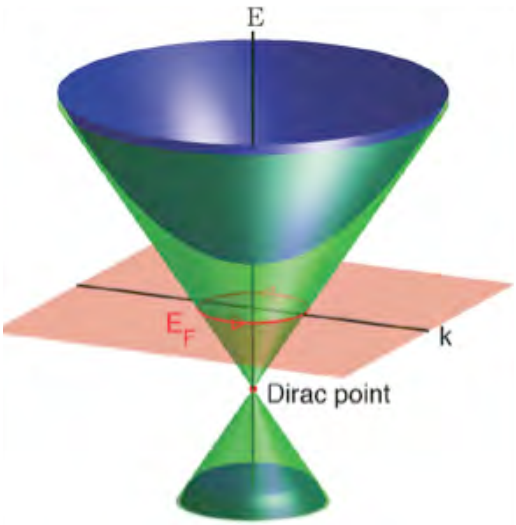
8 Heads UP!

NHMFL coaxes new discoveries from topological insulators

A topological insulator is a unique state of matter possessing a metallic surface state of massless particles (Dirac fermions) that have coupled spin and momentum quantum numbers. This material has promising electrical properties for applications in spintronics. However, the conductivity of these compounds tends to be dominated by the bulk of the material because of chemical imperfection, making the transport properties of the surface nearly impossible to measure.

Ross McDonald (Condensed Matter and Magnetic Science, MPA-CMMS) and collaborators at the Stanford Institute of Materials and Energy Sciences (James Analytis, Ian Fisher, Scott Riggs, and J.-H. Chu) and the National High Magnetic Field Laboratory (NHMFL) and Florida State University (Scott Riggs and G. S. Boebinger) used one of the most powerful magnets in the world to isolate signs of electrical current flowing along the surface of a topological insulator. The results provide a new window into how current flows in these exotic materials, which conduct current with almost no resistance along the exterior, while acting as insulators at the interior. *Nature Physics* published the work.

The promise of useful applications for these exotic new materials and possible discoveries of fundamental new physics rests on the ability to measure and control the electric current at the surface. Therefore, the scientists first had to reduce the amount of current running through the bulk of the material until the



Schematic of the surface state Dirac cone (green) and bulk conduction and valence bands (blue). The orbit at the Fermi energy (red) has the electron spin coupled to the momentum giving rise to a chiral Fermi liquid. This is a unique property of topological insulators.

continued on page 3

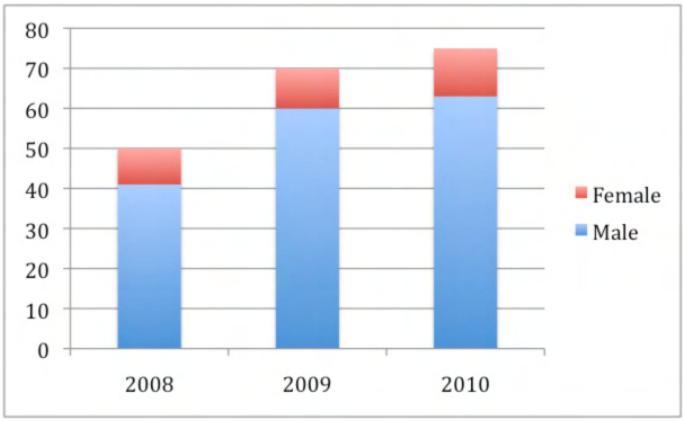
From David's Desk

'Part of hiring the best qualified personnel is ensuring that we pursue applicants from the best universities and groups around the world.'

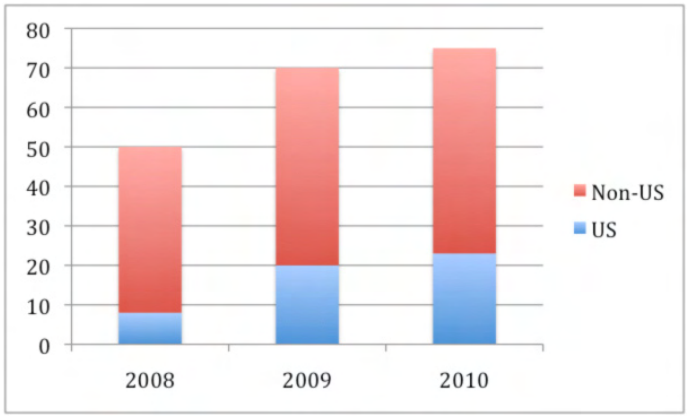
MPA's postdoctoral employees play a critical role in our research. Every group in the Division relies on postdocs to provide expertise essential to our research goals as well as to invigorate the intellectual environment of our workplace. Postdoctoral appointments are focused on research and development, enhancing our productivity. In addition, by bringing in new personnel we acquire broader knowledge of the state-of-the-art in research around the world. In MPA Division, as well as in the rest of the Laboratory, the majority of our scientific staff were first employed as postdocs at Los Alamos. Sustaining a strong postdoc program at LANL is clearly in our best interest.

A recent review of the postdoctoral program at LANL gave the program high marks. However, it was noted that the postdoctoral population lags behind trends in U.S. graduate programs at universities in terms of gender diversity. Since MPA Division currently employs almost 20% of the postdocs at LANL, we have a role to play in addressing this issue. I thought it would be worthwhile to provide some background information and suggest some things we might do to improve diversity. We also employ a large number of foreign nationals as postdocs, so I thought I would explore this also. Let me start by saying that we will hold firm to the commitment to hire the best qualified people at all levels of employment within MPA.

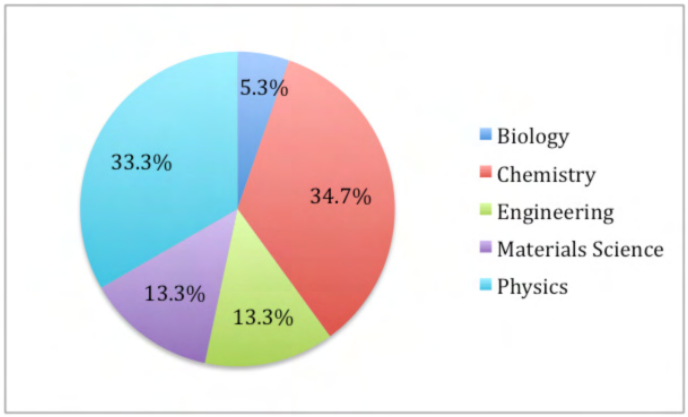
I got data on our postdoc population and have provided plots for the trends over the last few years. In terms of gender our statistics look flat, with typically 16% female. The National Science Foundation (NSF) is a good source for data on the sciences, so I referred to its studies to obtain a basis for comparison. In 2006, 26.5% of the university faculty within the physical sciences (looking at the population less than 10 years from obtaining a PhD) were female. Given that MPA is a relatively academic organization, we are lagging what universities seem to be accomplishing. However, it also shows that we have a ways to go to match the available population. I have



MPA postdoc population by gender, headcount in November.



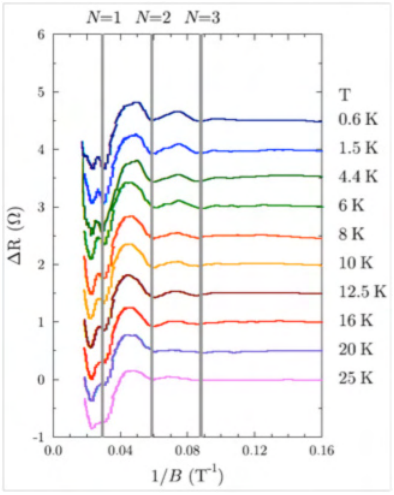
MPA postdoc population by citizenship, headcount in November.



MPA postdoc population by degree field (2010).

also shown a plot of our foreign national population. In this case, the number of U.S. citizens has grown as we have hired over the last few years. We now have about 30% U.S. citizens and 70% foreign nationals. The NSF data shows that in 2006, within the physical sciences, 54% were U.S. citizens. This percentage is higher across all sciences. Finally, I looked at the field of PhD for our postdocs. While we employ a few biologists, almost 95% of our postdocs are in physics, chemistry, engineering, and materials science.

continued on page 6



Transport signature of the two-dimensional surface state of a topological insulator. A smooth second-third order polynomial can be be fitted as background and subtracted from the raw R_{xx} (longitudinal Hall resistance) to reveal quantum oscillations that grow with field. The vertical lines indicate the first three Landau levels N = 1, 2, 3 of the two-dimensional state.

Insulators . . . surface current could be detected, and then probe the physical properties of the electrons responsible for that surface current. They tackled the first problem by replacing some of the bismuth in bismuth selenide, a known topological insulator, with antimony, a lighter relative with the same number of electrons in its valence, or chemically reactive, shell. This reduced the number of charge-carrying electrons in the interior of the sample. However, even after removing hundreds of billions of electrons, the materials did not behave as an insulator. Then McDonald subjected the material to pulsed magnetic fields at the Pulsed Field Facility, LANL's branch of the NHMFL.

Electrons in a uniform magnetic field follow circular orbits. As the electrons are subjected to higher and higher magnetic fields, they travel in tighter and tighter orbits, which are quantized, or separated into discrete energy levels, called Landau levels. McDonald used the large magnetic field at LANL's Pulsed Field Facility to trap the bulk electrons in their lowest Landau level. This enabled the researchers to differentiate between the bulk electrons and the surface electrons. A moderate field of 4 Tesla was sufficient to force the bulk conduction electrons into their lowest Landau level, revealing a clear signature from the Landau levels of the surface electrons up to 65T. In contrast to the three-dimensional bulk behavior, the Landau levels originating from the surface only depend upon the perpendicular component of a magnetic field. At the very highest magnetic fields, where the surface electrons are pushed most closely together, scientists detected signs that the electrons interacted with each other instead of behaving like independent particles. The research illustrated that quantum effects associated with the surface states of the materials can be observed if the bulk conductivity is sufficiently suppressed.

Reference: "Two-dimensional Surface State in the Quantum Limit of a Topological Insulator," *Nature Physics* (published online 21 November 2010). The National Science Foundation and the DOE Office of Science supported the LANL work.

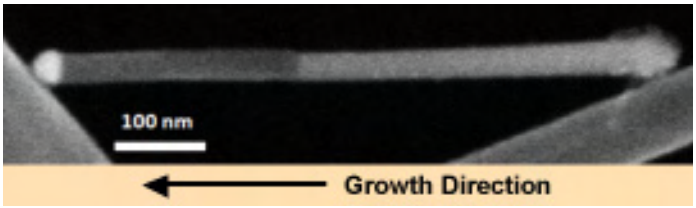
Postdoctoral researchers receive awards at Postdoc Research Day

Daniel Perea (Center for Integrated Nanotechnologies, MPA-CINT) is the recipient of a poster award at the recent Los Alamos Postdoc Research Day for his work on "Controlling Heterointerface Abruptness in Vapor-liquid-solid Grown Semiconductor Nanowires via a Gold/gallium Alloy Catalyst." His mentor is Tom Picraux (Center for Integrated Nanotechnologies, MPA-CINT).

Perea manufactured better semiconductor nanowires, tiny filaments a billionth of a meter thick. The nanowires have sharper transitions between two materials, which are needed in the development of more efficient solar cells. Scientists often use the vapor-liquid-solid process to grow nanowires. Perea and collaborators found that a less-absorbent gold/gallium alloy catalyst enables a sharper boundary between different materials in a nanowire (see figure).

Recognized with honorable mentions were Aditya Mohite (MPA-CINT/ Physical Chemistry and Applied Spectroscopy, C-PCS) for "Capacitive Photocurrent Spectroscopy of Excitons in Nanomaterials" and Rob Thomson (MPA-CMMS) for "Photochemistry of Uranium Organometallics: Access to Uranium Imides and Nitrides."

The Laboratory-wide Los Alamos Postdoc Research Day provided postdoctoral researchers the opportunity to present a summary of their Los Alamos research, receive feedback, and enhance collaboration and technical discussions among postdoctoral researchers and staff. The Los Alamos Postdoc Association and the Postdoc Program Office co-sponsored the event.

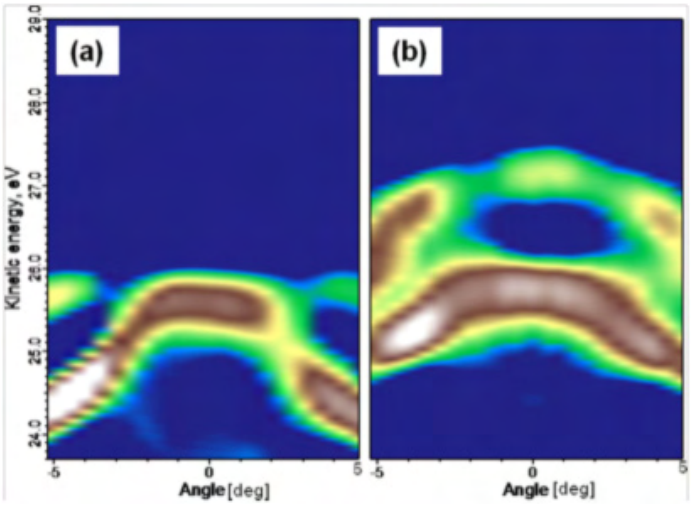


A nanowire grown with an abrupt heterojunction.

Tunable ultrafast extreme ultraviolet source for photoemission spectroscopy

Georgi Dakovski and George Rodriguez (MPA-CINT) and Tomasz Durakiewicz and Yinwan Li (MPA-CMMS) developed a novel tabletop laser-based apparatus, called time- and angle-resolved photoemission spectroscopy (trARPES).

continued on page 4



Time-resolved ARPES energy-momentum maps for the heavy fermion URu_2Si_2 at T=12K in the hidden order phase (T_ h=17.5K) for the (a) unpumped-ground state and (b) pumped-dynamic state. The XUV probe ARPES photon energy is 32eV, 21st harmonic of the fundamental pump energy at 1.5 eV. For the dynamic state case, the pump photon energy is 3 eV, and the dynamic state snapshot is taken at a time delay of zero.

Tunable… This is a version of the ARPES technique for studying the electronic structure of solids. ARPES provides detailed measurements of ground state electronic band structure of occupied electronic states in static mode, while trARPES reveals the dynamics of electronic structure through stroboscopic measurements of occupied and unoccupied electronic states. The scientists demonstrated the capabilities of the instrument to select the ARPES photon energy of choice, to record angle-resolved photoemission maps, and to trace the ultrafast dynamics of transient excited states in complex materials.

Dynamical-based ARPES measurements enable direct measurement of the time-dependent interplay between the various quasiparticle subsystems and collective effects on emergent material properties. Possible applications include investigations on ultrafast changes in the electronic structure of high temperature superconductors and strongly correlated actinide compounds. Their paper, "Tunable Ultrafast Extreme Ultraviolet Source for Time- and Angle-resolved Photoemission Spectroscopy," *Review of Scientific Instruments* **81**, 073108 (2010) is one of the 20 most downloaded research papers from the journal in September.

The laser-based tabletop apparatus for ultrafast visible pump/extreme ultraviolet (XUV) probe time-, energy-, and angle-resolved photoemission spectroscopy uses high-harmonic generation from a noble gas to generate the required photons. A time-delay compensated monochromator with high throughput efficiency isolates a single harmonic order of ultrashort duration. Kevin Graham (MPA-CMMS), Paul Dowden (Superconductivity Technology Center, MPA-STC), and Quinn McCulloch (MPA-CINT) provided early technical support during the design and construction phase of the instrument. The Los Alamos Laboratory Directed Research and Development (LDRD) Program funds the research.

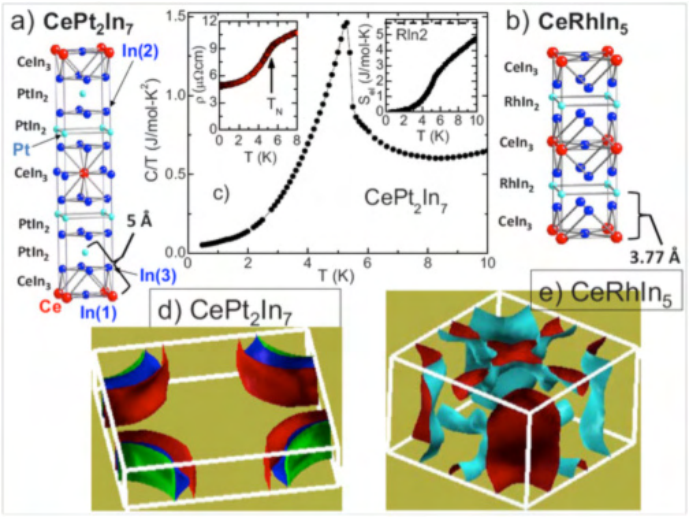
Technical contact: George Rodriguez

Pressure-induced superconductivity near the antiferromagnetic quantum critical point of $CePt_2In_7$

LANL scientists, in collaboration with a scientist in Korea, have discovered pressure-induced superconductivity in the heavy-fermion antiferromagnet $CePt_2In_7$. This material is a new, more structurally two-dimensional member of the $Ce_mM_nIn_{3m+2n}$ family of superconductors discovered by Joe Thompson (MPA-CMMS), John Sarrao (Science Program Office-Office of Science, SPO-SC), and Zachary Fisk (University of California, Irvine) in 2000.

$CePt_2In_7$ reveals how dimensionality and hybridization produce and enhance unconventional superconductivity. An analysis of the physical properties near the critical pressure (where antiferromagnetism is completely suppressed) suggests that tiny motions of the cerium magnetic moments, or spin fluctuations, may mediate the unconventional superconductivity. This is in contrast to a conventional superconductor, such as aluminum or lead, where the superconducting pairs of electrons are bound together by vibrations of the crystal lattice (phonons). Theoretical models of unconventional superconductivity predict that the more two-dimensional crystal structure of $CePt_2In_7$ should have a higher

continued on page 5



Crystal structure of (a) $CePt_2In_7$ and (b) $CeRhIn_5$. (c) Specific heat C/T vs T of $CePt_2In_7$ of sample B. (Right inset): entropy Sel(T) below 10 K. (Left inset): ρ(T) below 8 K at 0.1 T. Band structure of (d) $CePt_2In_7$ and (e) $CeRhIn_5$. The calculated Fermi surface of $CePt_2In_7$ is composed of three, nearly ideal cylindrical sheets (d), whereas $CeRhIn_5$ is composed of corrugated cylindrical sheets (e).

Pressure-induced . . . superconducting transition temperature (T_c) than its more three-dimensional cousin $CeRhIn_5$, also a pressure-induced superconductor. However, the T_cs are nearly the same. Electronic-structure calculations of $CePt_2In_7$ reveal a delicate balance between structural anisotropy and hybridization between the Ce f-electrons and Pt d-electrons. This may account for the comparable T_c in $CePt_2In_7$ and $CeRhIn_5$.

Principal Investigator Filip Ronning and Co-Principal Investigator Eric Bauer (both MPA-CMMS) are leading a Laboratory Directed Research and Development (LDRD) project that motivated the discovery of pressure-induced superconductivity in $CePt_2In_7$. Their goal is to understand anisotropy and thus develop superconductors by design. The $Ce_mM_nIn_{3m+2n}$ family of superconductors, along with their $PuCoGa_5$ and $PuRhGa_5$ analogs, were discovered at Los Alamos by Sarrao and the Institute for Transuranium Elements (Germany). These superconductors and analogs are a rich area to explore and test these ideas, as nine of the eleven members of this family are superconductors.

Reference: "Pressure-induced Superconducting State and Effective Mass Enhancement near the Antiferromagnetic Quantum Critical Point of $CePt_2In_7$," *Physical Review B* (Rapid Communication) **81,** 180507(R) (2010). Bauer, Ronning, Thompson, Vladimir Sidorov, Han-Oh Lee, and Krzysztof Gofryk (MPA-CMMS); Jian-Xin Zhu (Physics of Condensed Matter and Complex Systems, T-4); and Tuson Park (Sungkyunkwan University, Korea) conducted this research. The publication garnered an Editor's Choice from *Physical Review B*. The DOE Office of Basic Energy Sciences, Division of Materials Sciences and Engineering and the LDRD program funded different aspects of the research.

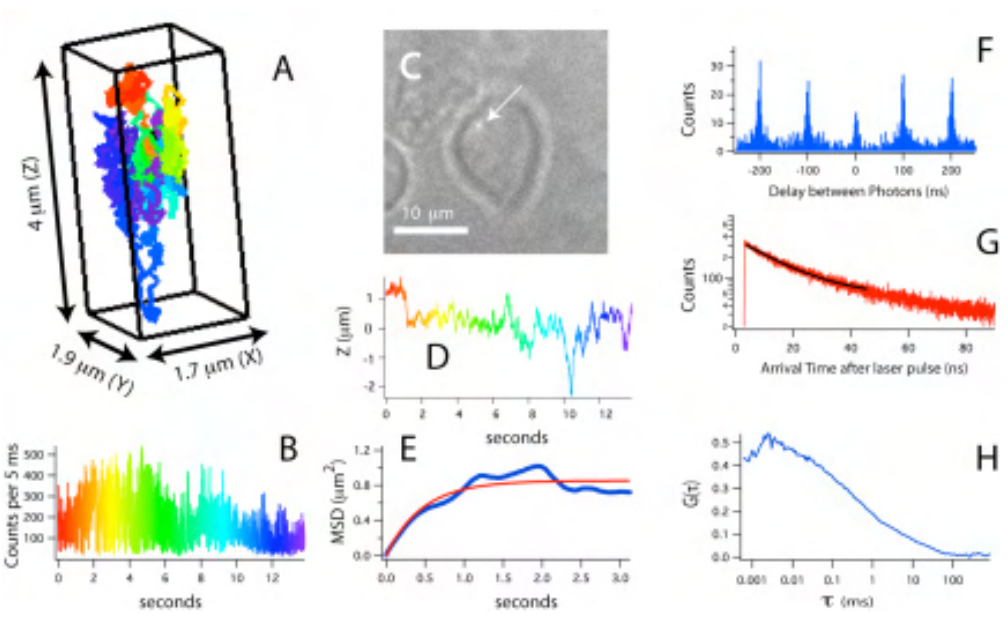
Technical contact: Eric Bauer

Time-resolved three-dimensional molecular tracking in live cells

The direct observation of individual biological molecules in motion can transform our view of important biophysical and cellular processes. For example, following the motion of individual fluorescently labeled bio-molecules has shed significant light on cellular membrane dynamics, motor protein kinetics, and gene regulation. Single molecule studies of molecular motion have distinct advantages over conventional microscopy methods, including the ability to localize molecules at precisions below the wavelength of light and the ability to observe motion that would be obscured in ensemble averaging. While quite powerful, following single molecule dynamics in living cells has been primarily limited to examining two-dimensional (2D) trajectories. However, most aspects of life, including protein and nucleic acid traffic in live cells, are inherently three-dimensional (3D).

Researchers at MPA-CINT (James Werner, Peter Goodwin, Guillaume Lessard, and Nathan Wells) have developed a method for 3D tracking individual quantum dot (QD) labeled proteins inside of live cells that uses four overlapping confocal volume elements and active feedback once every 5 milliseconds (*Nano Letters*, **10** (11) 2010). This method has substantial advantages over 3D molecular tracking methods based upon CCD cameras, including increased Z tracking range, substantially lower excitation powers, and the ability to perform time-resolved spectroscopy (such as fluorescence lifetime measurements or fluorescence correlation spectroscopy) on the molecules being tracked. In particular, this publication shows for the first time fluorescence photon anti-

continued on page 6



A) 3D trajectory of a single QD labeled IgE-FceRI on a rat mast cell. A rainbow color scheme is used to denote the passage of time. B) The counts used for 3D tracking and feedback. C) A CCD image showing the receptor location relative to the mast cell. D) The Z-position of this receptor, showing over 4 microns of Z-motion that would be missed in CCD-based tracking methods. E) The mean squared displacement (blue) and fit (red). The motion is highly compartmentalized and is fit using Equation 3 of the supplementary material. F) A photon pair correlation measurement derived from this ~14 second long trajectory that shows fluorescence photon anti-bunching. G) A histogram of photon arrival times with respect to the excitation laser pulse (red) and exponential fit (black) which yields a 16 ns fluorescence lifetime H) An autocorrelation analysis of photon detection rate obtained during this trajectory. The decay in the correlation curve is dominated by quantum dot blinking dynamics.

Time-resolved… bunching of individual QD labeled proteins in live cells (See figure panel F) and demonstrates the ability to track individual dye labeled nucleotides (Cy5-dUTP) at biologically relevant transport rates. This work follows individual QD-labeled IgE receptors both on and inside rat mast cells, as shown in the figure. Trajectories of receptors on the plasma membrane reveal three dimensional, nano-scale features of the cell surface topology. During later stages of the signal transduction cascade, clusters of QD labeled IgE-FcεRI were captured in the act of ligand-mediated endocytosis and tracked during rapid (~950 nm/s) vesicular transit through the cell.

This work is supported by the National Institutes of Health and was performed at the Center for Integrated Nanotechnologies, a U.S. Department of Energy, Office of Basic Energy Sciences user facility.
Technical contact: James Werner

McCleskey chosen as Materials Chemistry group leader

Thomas M. McCleskey has been named group leader of Materials Chemistry (MPA-MC).

McCleskey, who has been the acting MPA-MC group leader since May, has a distinguished record of technical, line, and programmatic leadership in materials chemistry at Los Alamos since his arrival as a Director's-funded Postdoctoral researcher in 1994. Most recently he is serving as the Making, Measuring, and Modeling Materials (M4) pillar lead for the MaRIE, identifying the decadel scientific challenges in materials discovery and control and translating this vision for the future signature experimental facility.

Prior to Los Alamos, McCleskey, who earned his PhD in inorganic chemistry from the California Institute of Technology, was an associate researcher studying fundamentals of electron transfer at the Beckman Institute for Advanced Science and Technology at the University of Illinois Urbana-Champaign.

In 1997, McCleskey became a Laboratory technical staff member in Structural Inorganic Chemistry, serving as its deputy group leader from 2003 to 2005. In 2006, the group re-organized into MPA-MC. In 2006, McCleskey earned a Federal Laboratory Consortium Award for Excellence in Transfer Technology for the development of measuring enzyme-substrate affinities (MESA), a low-cost assay for detecting the binding of drugs to proteins without the biasing influence of added fluorescent molecular labels. In 2007, he earned an Alice Hamilton Award for Occupational Safety and Health for the validation of a standardized portable fluorescence method for determining trace beryllium in workplace air and wipe samples.

McCleskey, who has 22 patents, serves as the Experimental Physical Sciences (ADEPS) representative on the patent advisory board. McCleskey is currently researching chemical solution routes to coat porous materials to develop epitaxial thin films and high surface area foams. This research has recently resulted in novel electrodes for fuel cells based on molybdenum nitride foams, epitaxial thin films of plutonium and neptunium oxide to test theoretical calculations of electronic structure, and new photonic crystal compositions with dramatically altered optical properties.

Desk… As I said, postdocs are our future scientific staff, so the long-term diversity of our staff depends on the diversity of our postdoc population. Part of hiring the best qualified personnel is ensuring that we pursue applicants from the best universities and groups around the world. We would like to encourage those hiring postdocs to look more broadly, and specifically to ensure that we are looking at good U.S. universities and asking about opportunities to recruit women in particular. As we move forward, we will be asking groups to provide evidence that this is part of their recruitment effort. Additional ideas for how we can identify and attract highly qualified postdocs that improve our diversity are welcome.

MPA Deputy Division Leader David Watkins

From Cathy's Desk

I'd like to take this opportunity to bring the Division up to speed on the Directorate's progress in implementing the FY11 Environmental Action Plan (EAP) that was developed in support of the Lab's Environmental Management System. Since September 2009 I have served as the Division's representative on the ADEPS team responsible for developing and disseminating the plan. The team currently includes Steve Glick from P Division (the Directorate Point of Contact [POC]), Jim Coy from MST, and Frances Aull from LANSCE.

I'll start by reminding you of where we were in 2007: the internal EMS audit stated that "*…the EMS process in ADEPS lags compared with other directorates…*", followed by "*Communication of EMS information…was virtually non-existent…*" and finishing up with "*…15 of 15 workers interviewed were completely unaware of the existence of ADEPS' Environmental Action Plan.*"

We have gotten substantially better in the past 3 years, with the 2010 findings having a decidedly more positive tone: "*ADEPS used a variety of communication tools to deliver EMS info throughout the year;*" "*Managers were performing environment-focused MOVs … with several exceeding the number of quarterly environmental MOVs required by the directorate;*" and "*Strides were made in identifying, consolidating and dispositioning unused and unwanted materials*." Great job! But we have more work to do.

Environmental management will always be an ongoing effort. We humans impact the environment in many ways, and most of the time it is in a negative way. We consume resources, we generate waste, we make mistakes. Our 2011 draft Environmental Action Plan addresses our impact on the environment and outlines steps we can take to reduce our impact and decrease the potential for and severity of any environmental damage.

Let's look at our objectives, and the specific targets we have developed to meet the objectives. These objectives parallel the LANL institutional objectives, with the targets fine-tuned to fit our Directorate's needs.

'Our 2011 draft Environmental Action Plan addresses our impact on the environment and outlines steps we can take to reduce our imact and decrease the potential for and severity of any environmental damage.'

Objective 1: Improve environmental & safety performance via improved integration and communication at the work level. Managers will continue to emphasize environmental aspects during our MOVs, and we will disseminate information on the EAP using posters, group briefings, and e-mails.

Objective 2 – Reduce cost & increase efficiency/operating capacity using an approach to P2 (Pollution Prevention). We are working with the Lab's Environmental Team to understand our chemical waste generation profile so that we can establish long-term waste-reduction goals. We will also complete implementation of the MST Chemical Stockroom and installation of the MPA-11 methanol recirculation and recovery loop to reduce the volume of liquid waste. Both of these projects were competitively selected for Generator Set Aside Funding (GSAF), the Lab program that uses funds collected from waste generators to fund waste-reduction efforts. The annual call is usually issued in late August – keep an eye out for it.

Objective 3 – Reduce cost and increase efficiency via energy conservation/reductions in fuel, electricity, and H_2O consumption. This one is interesting – did you know that the MST-OB (03-1415) is one of LANL's High-Efficiency Sustainable Buildings? We are going to put together some posters and flyers that inform the occupants and visitors of the energy-efficient aspects of the building.

Objective 4 – Implement Lab-wide clean-out activities to disposition unneeded equipment, materials, chemicals, and waste. Maintain a 97% or better chemical inventory via Chemlog database. Since most groups conduct their chemical inventories once a year, it is important to plan to complete the inventory in a timely manner. Plan ahead, and make sure you have a bar-code scanner available (several groups have purchased scanners and these can be borrowed).

continued on page 8

Cathy's desk . . . **Objective 5 – Reduce long-term impacts, increase operational capacity, and ensure lab sustainability through an integrated approach to site-wide planning & development.** Ensure long-term EPS facility needs are socialized with other lab organizations through active participation in all phases of MaRIE and the Pajarito Corridor construction project.

For MPA Division, managers are performing at least one MOV per quarter with an environmental focus; and our Group Solutions Teams will be doing peer walk-arounds. We will continue to meet the LANL goal of maintaining a 97% chemical inventory in the ChemLog database. We need you to turn off lights in offices, conference rooms, hallways, and labs when not in use. Get that leaking faucet/toilet/urinal fixed (contact your facilities coordinator). Turn off computer peripherals when not in use. Alter your purchasing habits – Purchase GREEN. Use the blue and green recycling bins. Share chemicals, minimize chemical inventories, purchase safer alternatives, recycle and dispose properly. Salvage all unnecessary or unused (and not needed) equipment. Nominate a deserving colleague for a P2 (Pollution Prevention) Award!!

Document, Record & Report all significant environmental actions that you take that positively affect the environment. Remember, if it's not recorded, it didn't happen. Please send your environmental action reports (e-mails are fine) to padro@lanl.gov or to your Group or Center leadership (who will forward it to me), or to the Directorate POC (Steve Glick – sglick@lanl.gov). This will ensure that our Division continues to get the recognition it deserves for our environmental efforts.

MPA-11 Group Leader Cathy Padro

Celebrating service

Congratulations to the following MPA Division employees celebrating service anniversaries recently:

Paul Dowden, MPA-STC	20 years
Vladimir Matias, MPA-STC	10 years

MPA MaterialsMatter

Published by the Experimental Physical Sciences Directorate.
To submit news items or for more information, contact Karen Kippen, EPS Communications, at 606-1822, or kkippen@lanl.gov
LALP-11-013
To read past issues see
www.lanl.gov/orgs/mpa/materialsmatter.shtml

HeadsUP!

New Online Escorting Log

A new online escorting log is now available for use in any Laboratory area with a badge reader, including Property Protection Areas. It is suggested that escorts use the online escorting log or use Access Log Form 1988 to record escort activities for their organizations. To access the online escorting log, visit http://int.lanl.gov/security/escort/log/

The online escorting log, which complies with Department of Energy directives, allows:
• only qualified escorts to enter visits on the log;
• escorts to indicate the date and time, technical area, building, and room location for visits; and
• escorts to modify entries in case there is a change in plans.
In addition, entries to the log will trigger an email notification to the host.

Validation

The online escort log is tied to the LANL training and clearance databases. The log will validate escorts' clearance levels and whether the escorts' training records (course number 18366) are current.

Escorts should note that the online escort log cannot validate the background of uncleared visitors (e.g., eligibility to be escorted, citizenship, etc.). Escorts must ensure they verify visitors' escortability.

Escorting Reminders

In addition to being qualified, escorts must indicate on the log that they will brief visitors about:
1) controlled and prohibited articles prior to entry into the area;
2) emergency procedures (e.g., muster areas); and
3) any facility-specific requirements.

Important: If the escort log is inaccessible online due to a server or computer problem, the facility owner or responsible line manager for the area may use the Access Log Form 1988.

Resources
• Escorting Help Desk, escortinfo@lanl.gov
• Security Help Desk, 665-2002, security@lanl.gov

For more information, please see the Security Smart at int.lanl.gov/security/documents/security-smart/2010/escortlog1210.pdf