Dirt-cheap catalyst may lower fuel costs for H₂-powered cars

‘Green’ process can run on sunlight

By Neal Singer

Hydrogen-powered cars don’t pass carbon into the atmosphere. Unlike gasoline, which does, the combustion of hydrogen with oxygen produces an exhaust only water. But hydrogen costs more.

So Sandia researchers, seeking to make hydrogen a less expensive fuel, have begun upgrading a plentiful catalyst nearly as cheap as dirt — molybdenum disulfide, “molly,” for short — to stand in for platinum, a rare element with the moonlike price of approximately $900 an ounce.

Sandia-induced changes are taking the less-than-$2 an ounce molly from a worm-weight outsider in the energy-catalyst field — put crudely, a lazy bum that never amounted to much — to a possible contender with the heavyweight champ.

And the catalyst’s action can be triggered by sunlight, a feature which eventually may provide users an off-the-grid means of securing hydrogen fuel.

A catalyst is necessary to free hydrogen from compounds.

Boosting hydrogen production

The improved catalyst, reported in Oct. 7 Nature Communications, has already released four times the amount of hydrogen ever produced by molly from water, and to Sandia postdoctoral fellow and lead author Stan Chou (1815), this is just the beginning: “We should get far more output as we learn to better integrate molly with, for example, fuel cell systems,” he says.

In Stan’s measured words, “The idea was to understand the changes in the molecular structure of molybdenum disulfide (MoS₂), so that it can be a better catalyst for hydrogen production: closer to platinum in efficiency, but earth-abundant and cheap.

We did this by investigating the structural transformations of MoS₂ at the atomic scale, so that all of the materials parts that were ‘dead’ can now work to make H₂ [hydrogen].”

Why were the parts “dead,” one might ask?

The rind of an orange

Visualize an orange slice where only the rind of the orange is useful; the rest — the edible bulk of the orange — must be thrown away. Molly exists as a stack of flat nanostructures, like a pile of orange slices. These layers are not molecularly bolted together like a metal but instead are loosely enough to slide over one another — a kind of grease, similar to the structure of graphene, and with huge internal surface areas.

Taking on H₂ storage challenge

By Patti Koning

Sandia will lead a new tri-lab consortium to address unsolved scientific challenges in the development of viable solid-state materials for storage of hydrogen onboard vehicles. Better onboard hydrogen storage could lead to more reliable and economic hydrogen fuel cell vehicles.

Storing hydrogen on board vehicles is a critical enabling technology for creating hydrogen-fueled transportation systems that can reduce oil dependency and mitigate the long-term effects of burning fossil fuels on climate change,” says Sandia chemist Mark Allendorf, the consortium’s director.

Called the Hydrogen Materials – Advanced Research Consortium (HyMARC), the program is funded by DOE’s Fuel Cell Technologies Office in the Office of Energy Efficiency and Renewable Energy at $3 million per year for three years, with the possibility of renewal. In addition to Sandia, the core team includes Lawrence Livermore and Lawrence Berkeley national laboratories.

But here’s the rub: While the edges of these nanostructures match platinum in their ability to catalyze hydrogen, the relative immense surface area of their sliding interiors are useless because their molecular arrangements are different.

A community that cares

2015 ECP campaign continues through Oct. 23

Emily Robinson, the 5-year-old daughter of Charles Robinson (B112), is battling a rare cancer — but not alone. The family has received price-less help from support agencies and dozens of Sandia colleagues. Charles is one of the faces of this year’s Employee Caring Program, which raises funds for the United Way of Central New Mexico. The campaign kicked off Oct. 5 with an extraordinary turnout. Read Emily’s story and catch up on the campaign on page 8.

Distinguished alumna

Carol Adkins, director of Energy Technologies and System Solutions Center 6100, has been named a distinguished engineering alumna of the University of New Mexico’s School of Engineering. See story on page 5.

Managed by Sandia Corporation for the National Nuclear Security Administration
That’s that

If that’s the smell of roasting green chiles in the air, it must be fall in New Mexico.

Every region of the country claims its own unique smells, some charming, some not so much, but if there’s a more magical and evocative scent anywhere than the one that tickles our noses every autumn in the Land of Enchantment, it could only be the combination of roasting chiles and the smoke from a pinon fire wafting across Old Town Plaza in Albuquerque.

Even somewhere that aromas linger in our memory forever, that a distinctive smell can evoke long-forgotten memories of a time and place more effectively than visual, audible, or tactile clues.

According to an article in Psychology Today, smells uniquely work on your memories and emotions in specific anatomical ways. The article states:

“Smells are first processed by the olfactory bulb, which starts inside the nose and runs along the bottom of the brain. The olfactory bulb has direct connections to two brain areas that are strongly implicated in emotion and memory: the amygdala and hippocampus. Interestingly, visual, auditory (sound), and tactile (touch) information do not pass through these brain areas. This may be why olfaction, more than any other sense, is so successful at triggering emotions and memories.”

For Sandians, the smell of roasting green chiles evokes associations that are especially welcome—not only does it mean fall is here, it also means it’s the beginning of a new fiscal year and the beginning of a new performance management cycle.

That distinctive smell tells us that after living most of the year in the world of matter-of-fact prose, we can once again exercise our creative side as we put together our annual performance management goals, which in my case have all too often represented the triumph of hope over experience.

If you’re from New Mexico, you probably didn’t bat an eye at the way I spelled “chili” above. For us, that’s the correct spelling and we cringe when we see it spelled “chili.” According to our Lab News stylebook, “chili” is only acceptable when talking about spices or the actual food.

For the rest of the country, the AP-sanctioned spelling of “chili,” she told them is not only wrong but also makes it impossible to be taken seriously. Furthermore, people who spell it “chile” have long been shown to have higher levels of memory and emotional intelligence.

That was too much for Sue, who exclaimed, “Well they don’t have that problem in New Mexican-datelined stories, but she says it felt like they did. When covering a town hall meeting anywhere in the state, she could almost hear the whispers: ‘There’s that [expletive] who spells it chili.’ For a New Mexican, that’s about as low as it gets.

And with that, Sue went out and bought herself a big bowl of green chile stew for lunch. Made with Hatch green chile! With an “e.”

See you next year.

— Bill Murphy

Lab News Reader Service

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That’s that
Sandia researchers win ‘best paper’ award from AIAA

Paper focuses on scramjet engines used for supersonic flight

By Michael Padilla

The American Institute of Aeronautics and Astronautics (AIAA) has recognized Sandia researchers Joe Oleeffin and Guilhem Lacaze (both 8351) with a best paper award for their work on scramjet engine simulations.

The paper, “A Priori Analysis of Flamelet-Based Modeling for a Dual-Mode Scramjet Combustor,” was a result of collaborations with Jesse Quinlivan and James McDaniel from the University of Virginia and Tomasz Drozda from NASA’s Langley Research Center. The award was presented by the AIAA High Speed Air Breathing Propulsion Technical Committee for accomplishment in the arts, sciences, and technology of air breathing propulsion systems.

The paper presents a detailed analysis of combustion regimes in a scramjet, an engine that operates at super- to hypersonic speed and will be used in the future for military, point-to-point transport and access-to-space applications.

The results presented in the paper are excellent examples of how collaborative teams across institutions can combine their expertise to provide new knowledge supporting the development of predictive combustion models for these systems,” says Joe.

The researchers described in the paper shows that both premixed and non-premixed combustion regimes contributed comparably to heat release in the studied case. The authors also demonstrated that using a typical “flamelet” modeling approach for the combustion process could significantly simplify the computational cost of such simulations.

Choice of models is crucial

The choice of models to study combustion regimes in a scramjet is crucial as it directly impacts the global accuracy of simulations, the authors said. Currently, most combustion models are developed for a specific combustion regime, and don’t work well across regimes. Thus, it is important to identify the broader range of regimes present. If the wrong model is used, numerical predictions will be incorrect, and efforts to develop and optimize the design of the scramjet system will go astray.

“Because of the extreme velocities, experiments are rare and limited; that’s why we do simulations of those systems to better understand how to optimize them,” says Guilhem. “To perform those simulations we need to use models to accurately represent the flame, and our paper shows which approach is the most relevant and why.”

The study will help define the best simulation techniques needed to optimize future scramjats. Improved numerical accuracy at lower cost should help designers explore the key design attributes required for breakthroughs in supersonic engines.

Works fits into philosophy of Combustion Research Facility

The work also has helped establish new funding for Sandia through an award from the Defense Advanced Research Projects Agency (DARPA) involving uncertainty quantification of scramjet combustion. “We anticipate many future collaborative activities with Jesse, Jim, and Tom,” Joe says.

This work fits into the philosophy of Sandia’s Combustion Research Facility where simulations complement experiments and bring key insights to improve real engines.

“Such improved efficiency, in turn, improves performance and reduces costs,” says Jeff Urban, Berkeley Lab team lead.

The consortium will explore several innovative ideas for solving these problems. The overall concept is to synthesize well-controlled materials to serve as model systems and develop experimental platforms for systematically probing key processes that limit performance.

Unprecedented spatial resolution

“Using these tools, we can study the hydrogen reactions with these materials using state-of-the-art techniques, such as those at Berkeley Lab’s Advanced Light Source and Molecular Foundry, which can provide unprecedented spatial resolution of material composition and character in real time,” says Jeff Urban, Berkeley Lab team lead.

The HyMARC strategy embodies the approach highlighted in the recent Materials Genome Initiative Strategic Plan for advanced materials development. The focus is on developing a set of ready-to-use resources accessible to the entire hydrogen storage community.

“This is a real game changer, providing an unprecedented need for hydrogen storage materials and new tools for characterizing, modeling, and synthesizing materials, many of which were not available even five years ago, our goal is to develop codes, databases, synthetic protocols, and characterization tools,” says Mark. “These resources will create an entirely new capability that will enable advanced materials development to achieve thermodynamics and kinetics required to meet DOE targets.”

HyMARC

(Continued from page 1)

solid-state hydrogen storage, laid a solid foundation for current work, including the understanding of the kinetics and thermodynamics of solid-state hydrogen storage, two categories of solid-state materials, novel sorbents, high-density metal hydrides, and liquid carriers,” says Brandon Wood, who is leading the Lawrence Livermore and Sandia are key elements of the team’s strategy to develop the enabling science for hydrogen solid storage technologies, along with advanced experimental tools available at Berkeley Lab’s Advanced Light Source and Molecular Foundry facilities.

Current H2 storage misses capacity, cost targets

In the past five years, fuel cell electric vehicles (FCEVs) have gone from a concept to reality. Automakers are starting to roll out commercial FCEVs and investments are being made to deploy hydrogen refueling infrastructure, especially in early markets such as California and the Northeast. However, the commercial FCEV light-duty vehicles are designed for 700-bar compressed hydrogen storage on board the vehicle and hydrogen refueling infrastructure is being deployed for compressed hydrogen refueling. Although compressed hydrogen provides a near-term pathway to commercialization, this storage method fails short of DOE targets for onboard hydrogen storage, particularly for volumetric hydrogen energy density and cost.

“Hydrogen, as a transportation fuel, has great potential to provide highly efficient power with nearly zero emissions,” says Mark. “Storage materials are the limiting factor right now.”

Thermodynamics, kinetics challenges

Although HyMARC will consider all types of hydrogen storage materials, two categories of solid-state materials, novel sorbents and high-density metal hydrides, are of particular interest. These materials have the potential to meet DOE targets to deliver hydrogen at the right pressure and energy density to power a hydrogen fuel cell vehicle.

A key challenge is the thermodynamics — the energy and conditions necessary to release hydrogen during vehicle operation. Sorbents, which soak up hydrogen in the nanometer-scale pores, bind hydrogen too weakly. In contrast, metal hydrides, which store hydrogen in chemical bonds, have the opposite problem — they bind the hydrogen too strongly.

The kinetics, the rate at which a chemical process occurs, is also an issue for high-density metal hydrides. These materials undergo complicated reactions during hydrogen release and uptake that can involve transitions between liquid, solid, and gaseous phases. In some cases, the chemical reactions can form intermediates that trap hydrogen.

The consortium will explore several innovative ideas for solving these problems. The overall concept is to synthesize well-controlled materials to serve as model systems and develop experimental platforms for systematically probing key processes that limit performance.

THE HYDROGEN MATERIALS ADVANCED RESEARCH CONSORTIUM (HYMARC) will advance solid-state materials for onboard hydrogen storage. Mark Allendorf (B308), center, is leading HYMARC with significant contributions from Farid El Gabaly Marquez (B342, left) and Leonard Klebanoff (B367), all shown here at Berkeley Lab’s Advanced Light Source. (Photo by Dino Vournas)

THE HYDROGEN MATERIALS ADVANCED RESEARCH CONSORTIUM (HYMARC) will advance solid-state materials for onboard hydrogen storage. Mark Allendorf (B308), center, is leading HYMARC with significant contributions from Farid El Gabaly Marquez (B342, left) and Leonard Klebanoff (B367), all shown here at Berkeley Lab’s Advanced Light Source. (Photo by Dino Vournas)

THE HYDROGEN MATERIALS ADVANCED RESEARCH CONSORTIUM (HYMARC) will advance solid-state materials for onboard hydrogen storage. Mark Allendorf (B308), center, is leading HYMARC with significant contributions from Farid El Gabaly Marquez (B342, left) and Leonard Klebanoff (B367), all shown here at Berkeley Lab’s Advanced Light Source. (Photo by Dino Vournas)
Dirt-cheap catalyst

(Continued from page 1)

ent from their edges. Because of this excess baggage, a commercial catalyst would require a huge amount of molly. The slender edges would work hard like Cinderella but the step-sister interiors would just hang out, doing nothing.

Stan, who studies two-dimensional materials and their properties, felt the Sandia intent should be to get these step-sisters jobs.

Empowering the center

“There are many ways to do this,” says coauthor Bryan Kaehr (1815), “but the most scalable way is to separate the nanosheets in solution using lithium. With this method, as you pull the material apart, its molecular lattice changes into different forms; the end product, as it turns out, is catalysts in a solar car.”

“Green” inorganic photosynthesis

A molly catalyst is essentially a “green” technology. “We used sunlight for the experiment’s motive power,” says Stan Chou. The light is processed through a dye that harvests light. A photocatalytic process stores that energy into hydrogen material rather than plants,” says Stan. “Plants use enzymes powered by sunlight to break up water into hydrogen and oxygen in a delicate process. We’re proposing a similar thing here, but in a more rapid reaction and with sturdier components.”

“You could generate hydrogen and use it whenever,” says Bryan Kaehr. “Hydrogen doesn’t lose charge over time, or suffer from conversion inefficiencies as do batteries in a solar car.”

observed with the amount of detail needed,” says Stan. Lacking these tools, researchers at other labs had ended their tests before the reaction could complete itself, like a cook taking sugar and water off the stove before syrup is produced, resulting in a variety of conflicting intermediate results.

Endling conclusion

“Why Stan’s work is impactful is that there was so much confusion as to how this process works and what structures are actually formed,” says Bryan. “He unambiguously showed that this desirable catalytic form is the end result of the completed reaction.”

Says Sandia Fellow and University of New Mexico professor Jeff Brinker (1000), another paper author, “People want a non-platinum catalyst. Molly is dirt cheap and abundant. By making these relatively enormous surface areas catalytically active, Stan established an understanding of the structural relation of these two-dimensional materials that will determine how they will be used in the long run. You have to basically understand the material before you can move forward in changing industrial use.”

Bryan cautions that what’s been established is a fundamental proof of principle, not an industrial process. “Water splitting is a challenging reaction. It can be poisoned, stopping the molly reaction after some time period. Then you can restart it with acid. There are many intricacies to be worked out.”

“But getting inexpensive molly to work this much more efficiently could drive hydrogen production costs way down.”

Other paper authors were Ping Lu (1819), Eric Coker (1815), Sheng Liu (1765) and Ting Luk (1131), and Kateryna Artzushkova from the University of New Mexico.

The work was supported by DOE’s Office of Science. Certain measurements were performed at the Sandia/Los Alamos run Center for Integrated Nanotechnologies (CINT), and computing resources were provided by the National Energy Research Scientific Computing Center (NERSC) and the Texas Advanced Computing Center. CINT and NERSC are DOE Office of Science User Facilities.
Researcher Susan Rempe keeps her eye on the mountain

By Nancy Salem

The path to research success at Sandia may be meandering, but patience, perseverance, and flexibility will lead there in the end, says a scientist who is traveling that road.

"Even if you take the circuitous route, it can be valuable and rewarding," said Susan Rempe (8635), a theoretical chemist and computational biophysicist who joined Sandia in 2001. "But set goals and know which mountain you will go after. As Yogi Berra said, 'You got to be very careful you don't know where you're going, because you might not get there.'"

Susan, a distinguished member of the technical staff, spoke Sept. 29 at the quarterly SWAN Women's Lecture Series. The topic was "How to Survive and Thrive in Research at Sandia."

Susan said her path in work and life has been anything but direct. Growing up in Montana, she considered lots of options, from writing to being a physician, veterinarian, or astronaut. She was also serious about music and science.

She majored in pre-medical sciences, with concentrations in history and German literature at Columbia University in New York. She was honored as an undergraduate. I thought p-chem 'the greatest thing ever.'

From that experience she learned that personal encouragement makes a difference. "It pointed me in the right direction," she said.

Susan planned to become a high school chemistry teacher until she ran into Sandia's Jim Martin (1124), who was recruiting at Washington. "I learned about the Labs. He told me Sandia is about science and solving fundamental problems, and about national security," she says. "I could do what I wanted science-wise. He said I could find colleagues with any expertise I needed. I found that very exciting."

"My question was how do you design a hole to control exactly what crosses a membrane?"

Network and be prepared

Susan dove into networking at conferences and publishing, and met people like physical chemist George Nolot of the United Kingdom, with whom she collaborated on the properties of hydrated ions; Rod MacKinnon, who read and commented on Susan's papers and later won a 2003 Nobel Prize in chemistry for his work on ion channels; and Arieh Warshel, who won a Nobel Prize in chemistry in 2014 for his computational studies of biological molecules. At one conference, Susan was asked to give an impromptu talk when a speaker canceled.

"I met the whole international ion channel community when I gave that talk," she said. "The lessons from that time were to network and be prepared."

Susan joined Sandia and began the search for funding. For several years she worked on other people's projects, but nothing of her own. "Friends said if you have good ideas the money will follow. I thought I had some good ideas. But I couldn't get the funding," she said. "I was stuck. I felt I wasn't advancing my career."

She cultivated outside interests in music, at one point performing and recording with an Albuquerque symphony, and outdoor activities like back-country skiing and kayaking. Finally, in 2004, Susan got funding. "What I learned was patience and persistence," she said.

Susan was among the first to join the Biosciences Center (8600). She continued going to conferences, making presentations, and talking about her ideas throughout the Labs. "Find out how your ideas can fit in. Educate the market," she said. "From communication, people came to me and provided funding," she said.

Choose good partners

When it came time to choose partners, Susan looked for "good, solid people I could rely on as collaborators, team players with good social skills."

"I found lots of good people to partner with," she said. "That's a huge key to whatever success I've had. Be honest and pick good people. They can be the greatest thing that ever happened to you."

Susan has worked on three major projects at Sandia. One is a technology developed in partnership with the University of New Mexico that helps regulate carbon dioxide emissions from electric generating plants. The technology is membrane based, and the bio-mimetic membrane is inspired by the way the human body filters water and is designed for water purification using reverse osmosis, which removes impurities with applied pressure powered by electrical energy. The technology, also developed with UNM, received R&D 100 and Federal Laboratory Consortium awards.

Susan has worked with the MD Anderson Cancer Center in Houston on a problem involving an enzyme used to treat childhood leukemia that causes serious side effects. Susan's team showed how to potentially control the side effects by eliminating a side-reaction catalyzed by the enzyme. Susan and her colleagues are studying ways to use the enzyme in different cancer treatments. She said researchers should be flexible or, as Yogi Berra said, "When you come to a fork in the road, take it."

"Recognize a good opportunity when it comes your way," she said. "You can't take every opportunity. You have to discriminate. Which will really move you forward in the direction you want to go?"

"And if something isn't working out, change your goals or adapt and take a different route."

Researcher Sandra Begay Campbell (6124)."
Jeanette Denaple was ‘the heart and soul’ of her team

Everyone who worked with Jeanette agrees on a couple of things right across the board: She was incredibly good at what she did. And she was the nicest person you’d ever want to meet.

‘Kind, giving, and loving’

“Jeanette was a key member of the team, always willing to roll up her sleeves and get right in the middle of things when we needed her help despite how she felt,” says Tom Rodgers (4238). “Knowing what she was going through and watching her take on each day with that cheerful smile was an inspiration. I know I will miss seeing her, especially during the first part of the day when she usually made her ‘good morning’ rounds to see if anyone needed help. She is one of the sweetest and kindest people I’ve had the pleasure to work with here at Sandia.”

Naomi Baros echoes Tom’s sentiments. “Never have I met someone as kind, giving, and loving as Jeanette,” Naomi says. “She was not just my co-worker, but a true friend. I miss her presence in my life tremendously. She will always and forever be on my mind and close to my heart. Heaven’s door welcomed a new saint the morning Jeanette went to be with the Lord. I love you Jeanette and will see you again.”

When Don Kaminski (4238) hired on at Sandia, Jeanette was his first contact. It couldn’t have been a better way to start a new job. “I have never met a nicer lady,” he observes. “She was always there to help when needed and was a delight to talk to. I will truly miss her. I hope she is in a better place.”

Deborah drew inspiration from Jeanette’s courage in the face of her final battle. “Even in her last days when she was in a great deal of pain, Jeanette always smiled,” Deborah says, adding that “her faith gave her strength” to face each day’s challenges. “There are days when I can’t believe I won’t see her at her desk with a radiant smile and kind words for everyone who was blessed enough to pass her way,” Deborah says. “She was a truly amazing person.”

Tom Rodgers speaks for everyone in Jeanette’s circle of friends and colleagues at Sandia when he says, “I knew this time would eventually come but it doesn’t make it any easier.”

‘Have a groovy day!’

Annie Marquez (4200) was moved and inspired by Jeanette’s example. “Her strength through everything she had to endure was so admirable. She really helped many of us put things into perspective. One of my favorite phrases she would say was ‘Have a groovy day!’ That always made me smile.”

Jeanette is survived by her husband of 29 years, Sandian John Denaple (2999), and by her daughter, Shealynn Denaple. She is also survived by her sister, her stepmother, three step-sisters, and many nieces and nephews. Jeanette was born in Clovis, New Mexico, and had been at Sandia for 12 years. Away from work, Jeanette enjoyed travel, reading, flowers, and volunteering for various community service organizations.

ProForce marks 65 years protecting Sandia resources, facilities, people

HA P PY 6 5 T H, P R O FO R C E — Current and former members of the Lab’s Protective Force gathered to reflect on and recognize the contributions ProForce has made to securing Sandia’s resources, facilities, and people. Over the past 65 years, the force has changed in size and structure but its mission has remained the same: To ensure the protection of accountable nuclear material, classified matter, and other Safeguards and Security interests from theft, espionage, and acts that may cause unacceptable adverse effects on national security or the health and safety of DOE and contractor employees, the public, or the environment. In the photo at top left, retired ProForce members Celho Monteith, left, Mario Garcia, Jim Armijo, and Ruben Garcia look on as Harold Garcia points out some highlights in photos from ProForce’s early days. At top right, Jim Armijo, a retired member of ProForce, and son Lawrence Armijo (4237) focus on the 1950s through 1970s, and photo at lower right shows pride in their collective decades of service to Sandia and the nation.

(Photos by Randy Montoya)
Judy Cardenas
30 106 5 6
Becky Wilcox
30 281
'71 VW BUG, excellent condition.

VIZIO COMPUTER MONITOR, 26" with speakers built-in $100, loads of earlier to mid-90's football cards.

HOCKEY GEAR, candle-making equipment, $100 ea., Parro-

TAP & 1 Quad-pole, begin-

ner electric guitar kit, $50 ea.

Milton, 400-9510.

IRONMAN PREMIER INVERSION TABLE, with memory foam, excellent condition, hardly used. New, $125, asking $80.


YORKSHIRE TERRIER MIXED PUPPIES, $150; 8 weeks old; 2 females and 2 males; par-

Karin Smith
30 851

rified with kids, call Jasmine Perry.

\begin{center}
\textbf{New Mexico photos by Michelle Fleming}
\end{center}

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\item \textbf{Lab News locations:}
\item Lab News is available in news racks at 24 locations throughout the Labs. Delivery to mall drops has been discontinued. A digital version of Lab News continues to be available on Tech Web as well as on Sandia.gov.
\item \textbf{Lab News Rack Locations:}
\item 1. Bldg. 802, elevator lobby
\item 2. Bldg. 810, east lobby
\item 3. Bldg. 822, south entrance
\item 4. Bldg. 858 EL, lobby
\item 5. Bldg. 880, Aisle B, north lobby
\item 6. Bldg. 892, lobby
\item 7. Bldg. 894, lobby
\item 8. Bldg. 896, lobby
\item 9. Bldg. 897, lobby
\item 10. Bldg. 836, lobby
\item 11. Bldg. 837, north lobby
\item 12. Bldg. 861, Cafeteria
\item 13. Bldg. 870, lobby
\item 14. Bldg. 878, lobby
\item 15. Bldg. 879, lobby
\item 16. Bldg. 880, lobby
\item 17. Bldg. 881, lobby
\item 18. CRSI, lobby
\item 19. M.O. 308, lobby
\item 20. M.O. 906, lobby
\item 21. Bldg. 962 (TA III), lobby
\item 22. Bldg. 6585 (TA V), lobby
\item 23. Bldg. 905, lobby
\item 24. Bldg. 2004 (III), lobby
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\item 6. Bldg. 892, lobby
\item 7. Bldg. 894, lobby
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\item How to submit classified ads
\item Deadline: Friday noon before week of publication unless changed by holiday, submit by one of these methods:
\item \textit{in person} Michelle Fleming (taxiade@sandia.gov)
\item \textit{FAX}: 505-235-1025
\item \textit{MAIL}: MS 1468 (Dept. 3651)
\item \textit{INTERNET WEB:} On internal web home-
\item \textit{PEARL}: ROCKETS 3 CLASSIC, 12,800 miles, blue/white, several extras, new tires.
\end{itemize}

\begin{itemize}
\item \textbf{Real Estate}
\item 7-BDR. EAST-MOUNTAIN HOME, perfect for home school-
\item 10-ACRE LOT near Lake of the Ozarks,
\item 323-2812.
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\item 7. 17TH STREET, AVE, 247K miles, good condition, $1,500. Grover,
\item 8. 18TH STREET, AVE, 247K miles, good condition, $1,500. Grover,
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ECP kickoff draws big, exuberant crowd — and more for the Community Fund

By Nancy Salem

Ted Kreifels heard it as he crossed the parking lot to the Steve Schiff Auditorium. “There was a real, loud buzz from the group,” he says. “It was indicative of the excitement we’re feeling and hearing from Sandia itself as the campaign lifts off.”

Ted, manager of System Surety Engineering III Dept. 424 and campaign chairman of this year’s Employee Caring Program (ECP), says the agency fair Oct. 5 that launched the 2015 ECP was a huge success. Hundreds of people came out to meet representatives of nonprofit organizations where Sandia employees volunteer.

So many participated that Sandia, which generally donates up to $5,000 to the United Way of Central New Mexico (UWCNM) Community Fund on behalf of the attendees, doubled that amount to $10,000. “People voted with their feet and with their hearts to contribute to the Community Fund, which supports a range of nonprofit agencies and programs that help people in Bernalillo, Sandoval, Torrance, and Valencia counties,” Ted says. “The turnout showed our employees are really behind this and that senior leadership is behind the employees.”

The ECP campaign, which raises funds for UWCNM, runs through Oct. 23. This year’s goals are:

• Increase overall participation to 78 percent.
• Increase new employee participation to 70 percent.

Fundraising events included book fairs Oct. 6-8 at the Thunderbird Cafeteria and Oct. 13-15 at the Steve Schiff Auditorium. Another is scheduled for Oct. 20-22 in the IPOC second floor break room from 10 a.m.-3 p.m.

Since the ECP was launched in 1957, Sandia has been the single largest supporter of the UWCNM annual campaign. Sandia staff and retirees have given more than $88 million to hundreds of agencies serving tens of thousands of people needing help.

Ted says his message to Sandia is to get connected to the campaign. “Sign on to the website, make your contribution, and get involved,” he says. “People are doing all kinds of cool things. One group raised awareness with a managers’ foot-kicking contest.”

He says new employees are especially important to the campaign. “People who have been here under five years are a big part of Sandia’s changing identity,” he says. “We know that employees who give early in their career continue to give throughout their career. They show how much they care being part of a team and connected to the community.”

Pam Catanach (3652), the Community Involvement specialist who coordinates the ECP, says the dozens of ECP representatives throughout the Labs are doing an outstanding job this year reaching out to the workforce. “The campaign revolves around real people,” she says. “The reps are getting Sandians to connect with other Sandians.”

Donations can be directed to any nonprofit worldwide or to the Community Fund. All UWCNM administrative expenses go to the Corporeate Cornerstone program, so 100 percent of employee donations go to the chosen nonprofits. Employees can make changes to their donation online until Oct. 23 and later in the year using a paper form.

Ted says the song “Let It Be Me” by Ray LaMontagne captures the ECP’s spirit of giving and helping others. “When you’re down and you need a friend, let it be me. The song highlights singular acts of charity,” he says. “At Sandia we make that choice. At some point in your life you make a choice between thinking about yourself or thinking about the well-being of others. Sometimes you give a little and open a door, or sometimes you take a big step. Sometimes it comes from adversity you’ve experienced and sometimes from a place of joy and love. Everything in your life leads to that point.

“When you make the choice, you change, too, by giving of yourself. You rise to a whole new level and become a more selfless person through charity.”

A family of thousands
Help came from all sides when a Sandian’s daughter fell ill

By Nancy Salem

Three years ago, Charles Robinson’s 6-month-old daughter was hospitalized for febrile seizures. Charles (6112) and his wife Myra were scared and adrift in a place they didn’t fully understand. Help came from Child Life, an organization at the University of New Mexico Children’s Hospital that prepares kids and their parents for medical experiences.

“They explained procedures and gave us coping mechanisms to ease stress,” Charles says. “They maintain a huge playroom, separate from treatment facilities, where kids can be kids. They encourage play to take the edge off the discomfort.”

Another organization the Robinsons turned to was Children’s Cancer Fund of New Mexico, which helps families cope with the daily emotional, financial, and educational issues around living with and fighting cancer. The group provides counseling to children and college scholarships to survivors.

“Through it all, one of the most important things was Emily being able to talk about her disease, the pain, and treatment,” Charles says. “She just needed to talk to someone with experience with children who have gone through this.”

The family also received tremendous support from people at Sandia. Senior manager Charles Hanley (6110) donated to a fund to help cover medical bills, Bruce King and Josh Stein (both 6112) visited Emily in the hospital, and Brett Elles (5332) gave valuable advice.

Amanda Spinney (1911) went to the hospital and read to Emily, “I didn’t even know Amanda,” Charles says. “She heard about us and came to help.”

John Bowers (2225), who Charles met in the Dallas airport, and Melissa Sinerios (2955) collected donations. Other support came from John Lott (7342), Donna Baldomado (6916), Terrence Bock (1674), Dan Riley (6112), Melanie Atterborn (10629), Catherine Rutledge (1631), and managers Ross Gutermuth (6113) and Abraham Ellis (6112). Charles’s entire department made donations.

“I know I’m leaving out a lot of people,” Charles says. “So many Sandians stepped up to help us.”

EMILY’S COURAGE through monoclonal antibody immunotherapy and chemotherapy was inspiring. During the treatment she always had a smile for visitors, until I went through a difficult time when my daughter was diagnosed with cancer in 2001. It is because of the generosity showed to me by so many people that I want to give back to our community, and that is why I give to the United Way Community Fund.”

— Joy Giron (6612)

I give because . . .

JOY GIRON

“I have always had a soft spot for people who are less fortunate than me. When I see a homeless person on the street, I don’t care if it’s a penny or a dime, I always help. It makes me happy that I have passed this on to my children, but I had never known so much generosity from strangers, family, and friends, until I went through a difficult time when my daughter was diagnosed with cancer in 2001. It is because of the generosity showed to me by so many people that I want to give back to our community, and that is why I give to the United Way Community Fund.”

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— Joy Giron (6612)

THE MAKE-A-WISH FOUNDATION sent Emily Robinson, second from the right, to Disneyland with her parents Charles and Myra and sister Evelyn. “It was a magical trip,” Charles says. “Emily couldn’t have had a better time.”

An important visit came from Joy Giron (6612), whose 18-year-old daughter survived neuroblastoma. “Myra and I needed that visit like oxygen,” Charles says. “Survival rates for this kind of cancer are extremely low. We didn’t know any survivors.”

Charles says he continues to donate through the ECP to agencies that have helped Emily. “It’s easy to designate an organization,” he says. “I appreciate that.”

Emily’s cancer was in remission for five months but recently returned. “We don’t know what the future holds,” Charles says. “Things are tough for us right now. But I know without the support of Child Life, the Children’s Cancer Fund, and our friends at Sandia, it would be much more difficult. Sandia is a family 10,000 strong.”