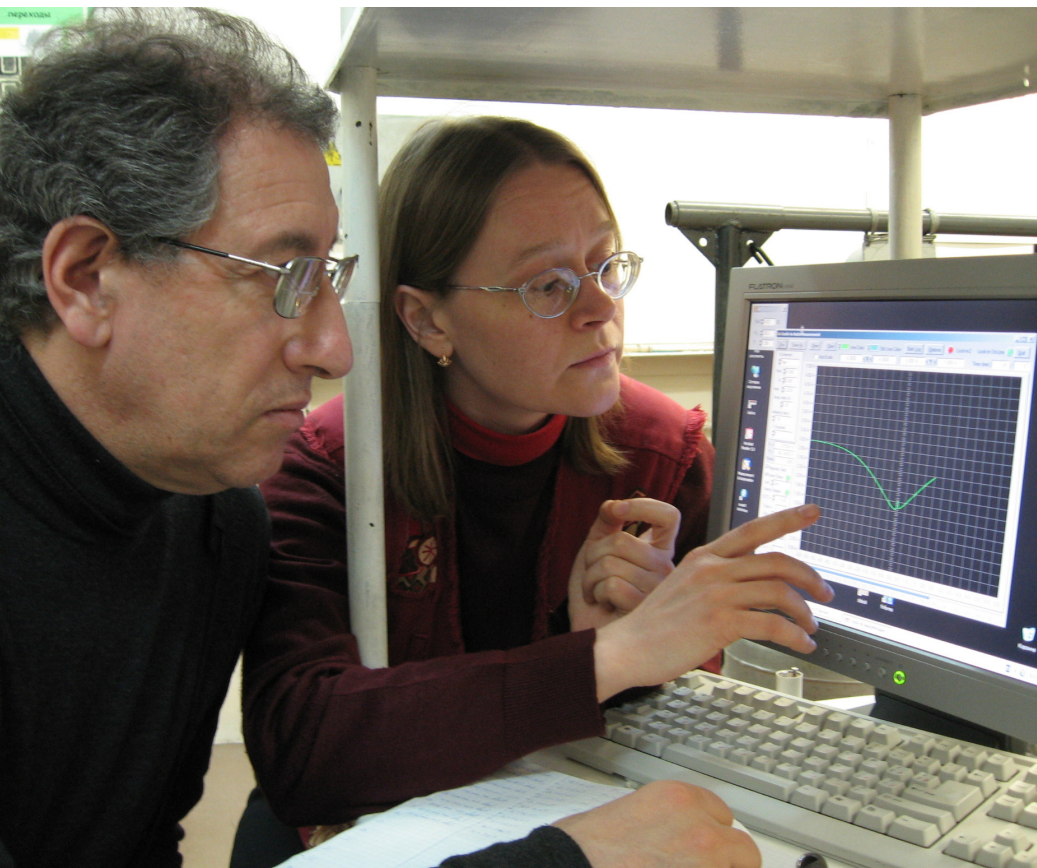


'Superinsulators' promise to transform materials research, electronics design



Argonne scientist Valerii Vinokur and Russian collaborator Tatyana Baturina examine a graph of the resistance of the insulating film plotted against the applied magnetic field.

Jared Sagoff

Superinsulation may sound like a marketing gimmick for a drafty attic or winter coat. But it's actually a newly discovered fundamental state of matter created by Argonne scientists in collaboration with several European institutions. This discovery opens new directions of inquiry in condensed matter physics and breaks ground for a new generation of microelectronics.

Led by Argonne senior scientist Valerii Vinokur (MSD) and Russian scientist Tatyana Baturina, an international team of scientists from Argonne, Germany, Russia and Belgium fashioned a thin film of titanium nitride, which they then chilled to near absolute zero. When they tried to pass a current through the material, the researchers noticed that its resistance suddenly increased by a factor of 100,000 once the temperature dropped below a certain threshold. The same sudden change also occurred when the researchers decreased the external magnetic field.

Like superconductors, which have applications in many different areas of physics, from accelerators to magnetic-levitation (maglev) trains to MRI machines, superinsulators could eventually find their way into a number of products, including circuits, sensors and battery shields.

If, for example, a battery is left exposed to the air, the charge will eventually drain from it in a matter of days or weeks because the air is not a perfect insulator, according to Vinokur. "If you pass a current through a superconductor, then it will carry the current forever; conversely, if you have a superinsulator, then it will hold a charge forever," he said.

"Titanium nitride films, as well as films prepared from some other materials, can be either superconductors or insulators depending on the thickness of the film," Vinokur said. "If you take the film which is just on the insulating side of the transition and decrease the temperature or magnetic field, then the film all of a sudden becomes a superinsulator."

Scientists could eventually form superinsulators that would encapsulate superconducting wires, creating an optimally efficient electrical pathway with almost no energy lost as heat. A miniature version of these superinsulated superconducting wires could find their way into more efficient electrical circuits.

Titanium nitride's sudden transition to a superinsulator occurs because the electrons in the material join together in twosomes called Cooper pairs. When these Cooper pairs of electrons join together in long chains, they enable the

See "Superinsulators" on Page 2

Strategic Planning Initiative: Argonne's future directions

The laboratory's Strategic Planning Initiative is aimed at providing the laboratory with a road map for future research directions. Laboratory leadership identified six areas for investment in the future of Argonne:

- Sustainable energy production and use
- Large-scale scientific user facilities
- Systems and computational biology
- Exascale computing

- Astrophysics and cosmology
- National security

Argonne News interviewed the leaders of each of these strategic areas to learn about their roles in the initiative, strategic directions and examples of laboratory-directed research and development (LDRD) projects that form the basis of each initiative.

The following interview with Denny Mills, who heads the large-scale scientific user facilities initiative, will be the first in a series of articles in upcoming

Denny Mills, large-scale scientific user facilities

Laboratory directed research and development (LDRD) funded research projects are one way that the laboratory supports its future research directions.

Denny Mills is the leader for the large-scale scientific user facilities strategic direction. LDRD investment in this area is aimed at developing new or significantly expanding existing large-scale scientific user facilities aligned with Argonne's research strengths and capabilities. Mills came to Argonne in 1988 from Cornell University. He was one of the first people to be hired by the laboratory to work on the Advanced Photon Source; his interests were X-ray optics and developing hardware for the beamlines. Mills is now deputy associate laboratory director for Scientific User Facilities. He lives in Naperville and spends many of his weekends watching

his son play hockey for Neuqua Valley High School.

Q. How do you see your role within the Strategic Initiative?

A. I see my role as almost that of a cheerleader, not only for the development of large user facilities at Argonne, but for the science that can be done to take advantage of current and future facilities.

The initiative is divided into three areas. The first is accelerator R&D — many of our current facilities are accelerator-based, like the Advanced Photon Source and ATLAS. New initiatives such as the Facility for Rare Isotope Beams and, of course, any upgrade of the APS will be based on cutting-edge accelerator technology. As you can see, accelerator R&D covers a lot of territory. Another

See "Strategic Planning" on Page 2

Compound removes radioactive material from power plant waste

Scientists at Argonne and Northwestern University have developed a compound to capture and remove strontium 90, a common radioactive by-product of fission in nuclear power plants. When extracted from the reactor along with other isotopes, a mixture is created made up of the radioactive material and inert ions like sodium and calcium.

"The layered sulfides used work quite well," scientist Mercuri Kanatzidis said. "We even surprised ourselves."

This mixture is often incredibly acidic or alkaline, making it difficult to find a compound that can survive long enough to extract the strontium and not react with the sodium, which is harmless.

Kanatzidis and colleague Manolis Manos created a synthetic compound made up of sulfides that can survive in the harsh acidic or alkaline climate of the

mixture and strip away 99 percent of the strontium 90.

"The material is remarkably simple and can be made in large quantities at a relatively low cost," Kanatzidis said.

The synthetic compound trades its own potassium ions for strontium and can almost completely replace the radioactive element within a few hours.

The next step is to experiment with the compound's ability to siphon away other common radioactive elements like cesium and uranium.

Funding for the project was through Northwestern University and the National Science Foundation.

The research has been published in the early online edition of the *Proceedings of the National Academy of Sciences*. ▀

INSIDE

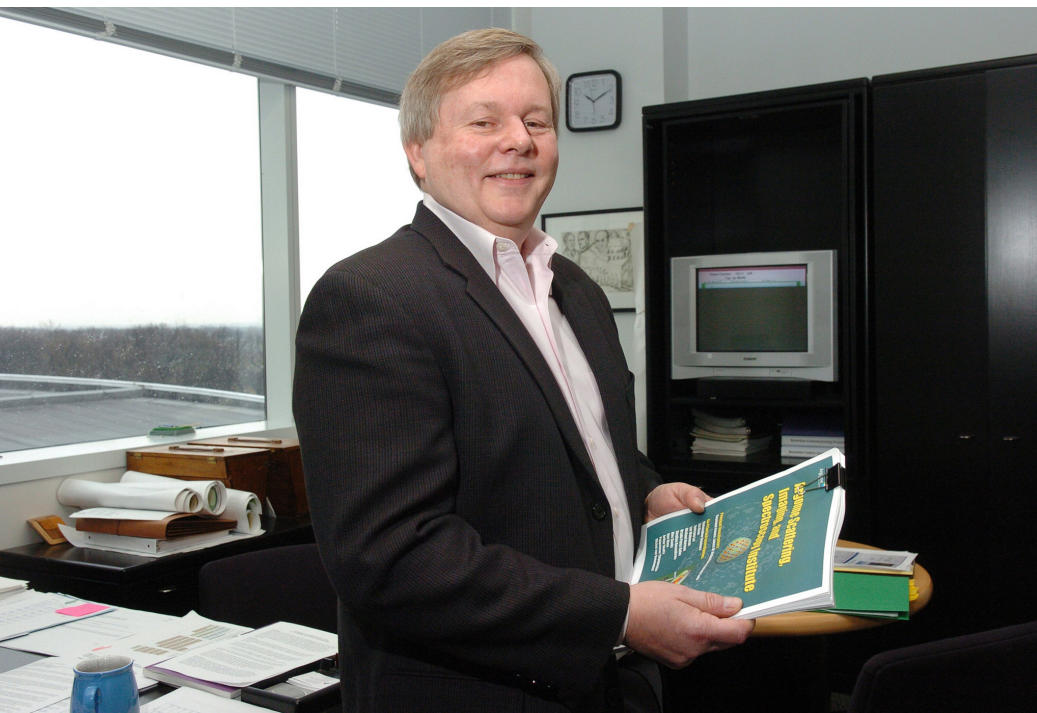
- BIOINFORMATICS TECHNOLOGY DEVELOPED AT ARGONNE PROVIDES NEW INSIGHT INTO MICROBIAL ACTIVITIES
- ARGONNE WATER IN COMPLIANCE WITH EPA STANDARDS
- ALGAE COULD ONE DAY BE MAJOR HYDROGEN FUEL SOURCE



UChicago
Argonne LLC



Strategic Planning



Denny Mills, the leader for the large-scale scientific user facilities strategic direction

Continued from page 1

important component of this initiative is detector technology, which certainly needs investment and resources. And the third area is “science enablers” — the new techniques and ideas that will lead to new science.

One is looking even a bit farther into the future, at an upgrade for the APS, and even some activities related to the International Linear Collider.

Q. What are some representative LDRD projects?

A. One of the science enablers is a proposal for the lensless imaging technique. It involves several divisions here at Argonne and cuts across a lot of different areas. It requires expertise in X-ray physics and X-ray optics, and the divisions have some very interesting problems to solve. Because of its potential scientific impact, advanced X-ray imaging such as this is one of the scientific directions that will be sup-

ported by any future APS upgrade. This project is setting a baseline by developing the people, the skills, the hardware and the software that will be required. That’s a good investment.

Also, we’re trying to establish a program in multidisciplinary coherent diffraction imaging, to help develop the expertise and the skill sets here. The goal is to give Argonne a leadership role in establishing coherent X-ray diffraction as a tool for structural imaging on non-periodic materials. It’s an important, forward-looking research field.

One area in which I’d like to see more activity is R&D for detectors and detector systems. This is such an important field, and in many cases we can get a lot of bang for the buck through improved or novel detectors. I’m hoping we get some really exciting and innovative proposals in the detector and detector systems R&D area in the coming year. ▀

Superinsulators

Continued from page 1

unrestricted motion of electrons and the easy flow of current, creating a superconductor. In superinsulators, however, the Cooper pairs stay separate from each other, forming self-locking roadblocks.

“In superinsulators, Cooper pairs avoid each other, creating enormous electric forces that oppose penetration of the current into the material,” Vinokur said. “It’s exactly the opposite of the superconductor.”

The theory behind the experiment stemmed from Argonne’s Materials Theory Institute (MTI), which Vinokur organized six years ago in the laboratory’s Materials Science Division. The MTI hosts a handful of visiting scholars from around the world to perform cutting-edge research on the most pressing questions in condensed matter physics. Upon completion of their tenure at Argonne, these scientists return to their home institutions but continue to collaborate on the joint projects. The MTI attracts the world’s best condensed matter scientists, including Russian “experimental star” Tatyana Baturina,

who, according to Vinokur, “became a driving force in our work on superinsulators.”

Scientists from the Institute of Semiconductor Physics in Novosibirsk, Russia, Regensburg and Bochum universities in Germany and Inter-university Microelectronics Centre in Leuven, Belgium, also participated in the research.

The research appears in the April 3 issue of *Nature*.

Funding for this experiment came principally from the Novosibirsk Institute of Semiconductor Physics and the University of Regensburg. The Basic Energy Sciences Division of the Department of Energy’s Office of Science and Argonne Materials Theory Institute also contributed to the research. ▀

To perform superinsulation experiments, the researchers used a dilution refrigerator, a device in which the temperature can be lowered to several millikelvin, just above absolute zero. The thin superinsulating films are then placed in the camera of the dilution fridge.

Bioinformatics technology developed at Argonne provides new insight into microbial activities

Scientists may gain a new insight into the relationship between viruses and their environments thanks to a new computational technology developed by researchers at Argonne. This technology has already been used to identify subtle differences in the metabolic processes of microbial communities.

The ability to determine such differences may help scientists detect environmental changes at early stages and identify previously unknown pathways for treating disease.

The researchers analyzed the frequency distribution of more than 14 million microbial and viral sequences from almost 90 different ecological communities, called metagenomes. By doing so, they hoped to produce a biological profile for the samples taken from diverse environments ranging from underground mines to sea and fresh water.

“Metagenomics enables the DNA from all microbes to be sequenced at once, without any culturing,” said Robert Edwards, a computational biologist at Argonne and San Diego State University and one of the project’s principal investigators. “Such an approach was impossible even a decade ago.”

Although the researchers had expected to find similar lifestyles among the viral metagenomes in every environment, they instead found that the metagenomes have distinctive metabolic profiles. Researchers may be able to use these profiles in the future to answer questions about the viral dynamics in, for example, the lungs of cystic fibrosis patients.

“Argonne has become a world leader in metagenomics,” said Edwards. “The bioinformatics technology developed by Argonne researchers and their collaborators is being used by hundreds of researchers worldwide. This work demonstrates the practical basis for the multimillion-dollar effort by the National Institutes of Health to understand the benign and malign roles of microbes in health and disease.”

As the use of metagenomics has become increasingly common, scientists have had to address the challenge of analyzing an enormous number of genomic sequences. To ease this process, scientists at Argonne and the Fellowship for Interpretation of Genomes

(FIG) developed a system that contains all known DNA and protein sequences. Using this directory, known as SEED, biologists can identify matches between metagenomes and profiles already in the SEED database.

For this study, DNA sequences first were analyzed by using a high-throughput pipeline called the metagenomics RAST (Rapid Annotation using Subsystem Technology) server (*metagenomics.theseed.org/*), developed by researchers from Argonne in collaboration with FIG, the University of Chicago, San Diego State University and Hope College.

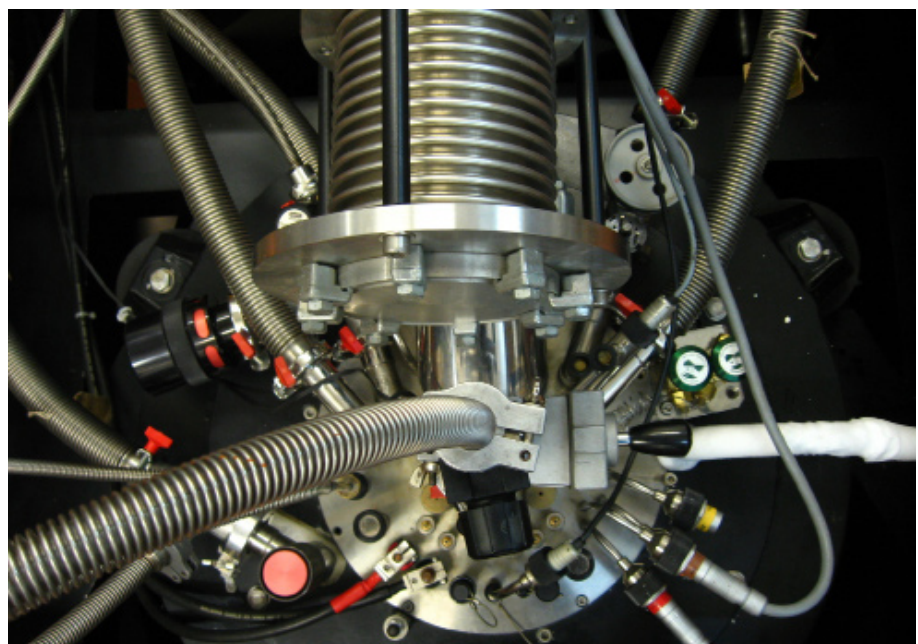
“Comparing such a huge number of metagenomes is an enormous computational task,” said Rick Stevens, a principal investigator in the project and associate laboratory director of Computing, Environment, and Life Sciences. “This automated technology revolutionizes the steps needed to acquire an accurately annotated genome.”

The sequences then were compared to the SEED platform by using the compute cluster at the National Microbial Pathogen Data Resource. The database allows an overview of the microbial communities and the ability to focus on one metabolic area and detect differences in the proteins being used by the microbes in each environment.

“The initial analysis took months of computer time,” said Stevens. “We eventually determined that more than one million sequences from the microbial metagenomes and more than 500,000 from the viral metagenomes were significantly similar to functional genes within the SEED.”

The research was funded by the Gordon and Betty Moore Foundation Marine Microbial Initiative, the National Science Foundation, a Department of Commerce ATP grant, a National Research Initiative Competitive Grant from the U.S. Department of Agriculture Cooperative State Research, Education and Extension Service, the National Institute of Allergy and Infectious Diseases, the National Institutes of Health and the Department of Health and Human Services. The results have been accepted for publication in the journal *Nature* and appear online. ▀

<http://dx.doi.org/10.1038/nature06810>



Argonne water in compliance with EPA standards

Argonne's drinking water has very low or undetectable levels of contaminants and poses no known or expected risks to health, according to a report required by the U.S. Environmental Protection Agency (EPA).

The U.S. EPA requires that water system users receive an annual Consumer Confidence Report listing detailed data on contaminants. The report contains details on the drinking water source, the level of detected contaminants and compliance with drinking water regulations.

Argonne gets its drinking water from the DuPage Water Commission, which gets Lake Michigan water from the City of Chicago's Department of Water.

Chicago Water Department monitoring information for 2007 is summarized in the chart below. EPA-identified contaminants are monitored and analyzed using methods specified by the agency. The chart shows results for constituents that were present in high enough amounts to be detected; regulatory limits are included for comparison. All other monitored constituents were below detection limits.

All monitored concentrations were

Contaminant	Units	MCLG	MCL	Level Found
Turbidity	%<0.5 NTU	NA	TT	100%*
Turbidity	NTU	NA	TT =1	0.58
Barium	ppm	2	2	0.018
Nitrate (as nitrogen)	ppm	10	10	0.41
Nitrate and Nitrite	ppm	10	10	0.42
Total Trihalomethanes	ppb	NA	80	16.5
Haloacetic Acids	ppb	NA	60	8.5
Sulfate	ppm	NA	NA	20.6

* 100% means all samples met standards

Key — NTU: Nephelometric Turbidity Unit. ppm: parts per million. ppb: parts per billion. NA: not applicable. Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. Maximum Contaminant Level (MCL): The highest level of contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as is feasible using the best available treatment technology.

In memoriam

Geraldine Agerton, an auxiliary equipment operator with 31 years of service in FMS, died March 21.

Raymond Barnes, a scientific associate with 37 years of service in CHM, died April 26. Rose Theresa survives him.

Charles Botwright, a retired laborer with 34 years of service in PFS, died Feb. 23. His niece, Barbara Beckmann, survives him.

Thomas R. Clayton, a retired quality engineer with 12 years of service in ENG, died Feb. 28. His wife, Virginia, survives him.

Herbert Diamond, a retired chemist with 46 years of service in CHM, died April 1. His wife, Ruth, and daughter, Linda Shapiro, survive him.

Robert J. Flynn, a retired senior veterinarian with 32 years of service in EIS, died March 11. His wife, Doris, survives him.

Kenneth Gablin, a retired waste

management specialist with 10 years of service is EMO, died Feb. 25. His wife, Trula, survives him.

less than the applicable regulation-based maximum contaminant levels, which indicates the drinking water contaminant levels show no known or expected risk to health.

Drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. Their presence does not necessarily pose a health risk. Some people may be more vulnerable to contaminants in drinking water than the general population. Those with compromised immune systems — such as those undergoing chemotherapy, persons who have undergone organ transplants, people with HIV, AIDS, or other immune system disorders, some elderly and infants — can be at risk from infections.

For more information, call John Daum (FMS-US) at ext. 2-8116. Questions on the analytical data should be directed to Norbert Golchert (EQO), at ext. 2-3912.

For information about EPA guidelines on ways to lessen the risk of infection from microbial contaminants, and information about contaminants and potential health effects, call the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

William Karraker, a retired maintenance mechanic with 33 years of service in PFS, died March 3. His wife, Doris, survives him.

Sheldon Kaufman, a retired physicist with 27 years of service in PHY, died Feb. 8. His children, Alice and David, survive him.

George A. McLennan, a retired mechanical engineer with 26 years of experience in RE, died April 2. His children, David, Donald and Diane Snyder, survive him.

Richard Schlueter, a retired chief technician with 36 years of service in MST, died March 28. His wife, Elaine, survives him.

Lawrence Stein, a retired chemist with 36 years of service in CHM, died Feb. 12. His daughters Nancy and Susan survive him.

Richard Schlueter, a retired chief technician with 36 years of service in MST, died March 28. His wife, Elaine, survives him.

Algae could one day be major hydrogen fuel source

Brock Cooper

Argonne scientists are answering that call for the next generation of renewable fuels by working to chemically manipulate algae to produce hydrogen gas.

"We believe there is a fundamental advantage in looking at the production of hydrogen by photosynthesis as a renewable fuel," said Senior Chemist David Tiede (CSE). "Right now, ethanol is being produced from corn, but generating ethanol from corn is a thermodynamically much more inefficient process."

Some varieties of algae, a kind of unicellular plant, contain an enzyme called hydrogenase that can create small amounts of hydrogen gas. Tiede said many believe this is used by nature as a way to get rid of excess reducing equivalents that are produced under high light conditions, but there is little benefit to the plant.

Tiede and his group are trying to find a way to take the part of the enzyme that creates the gas and introduce it into the photosynthesis process. The result would be a large amount of hydrogen gas, possibly on par with the amount of oxygen created.

"Biology can do it, but it's making it do it at 5-10 percent yield that's the problem," Tiede said. "What we

would like to do is take that catalyst out of hydrogenase and put into the photosynthetic protein framework. We are fortunate to have Professor Thomas Rauchfuss as a collaborator from the University of Illinois at Champaign-Urbana who is an expert on the synthesis of hydrogenase active site mimics."

Algae have several benefits over corn in fuel production. They can be grown in a closed system almost anywhere including deserts or even rooftops, and there is no competition for food or fertile soil. Algae are also easier to harvest because they have no roots or fruit and grows dispersed in water.

"If you have terrestrial plants like corn, you are restricted to where you could grow them," Tiede said. "There is a problem now with biofuel crops competing with food crops because they are both using the same space. Algae provide an alternative, which can be grown in a closed photobioreactor analogous to a microbial fermentor that you could move any place."

Tiede admitted the research is its beginning phases, but he is confident in his team and their research goals. The next step is to create a way to attach the catalytic enzyme to the molecule.

Funding for the research is provided by the U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences. ▀

Say What You Do, Do What You Say!

ISM Guiding Principles

1. Line management responsibility for safety
2. Clear roles & responsibilities
3. Competence commensurate with responsibilities
4. Balanced priorities
5. Identification of standards & requirements
6. Hazard controls tailored to work being performed
7. Operations authorization

ISM Core Functions

1. Define scope of work
2. Analyze hazards
3. Develop/implement controls
4. Perform work
5. Feedback and improvement



For more information: www.anl.gov/ISM/



Career day

Argonne's annual Science Careers in Search of Women conference brought more than 300 sophomore, junior and senior women and 60 teachers and counselors from nearly 60 Chicago area schools to Argonne April 3. The visitors experienced science careers first-hand through face-to-face interaction with positive female role models in science. A major theme of the event was discussing what life is like when pursuing professions in science and technology. Getting a close-up look at the Blue Gene/P supercomputer were (from left) Venus Liang, Jennifer Martino, Dharani Guttikonda and tour leader Sandra Bittner (CIS).

Classified ads

MISCELLANEOUS

CHAIRS - 4 brown vinyl swivel chairs not on wheels, metal arms & legs, brushed silver tone. \$20 each/obo. Also selling kitchen table set with 3 swivel chairs on wheels. Maple laminate table top, tan fabric chairs. \$70/obo. Loretta Phillips (630) 739-2210.

MOWERS - Sears craftsman mowers 5hp front wheel drive. \$120. 6.75 hp mower. \$180. Toro mower personal pace cast aluminum deck with bag. \$300. Scott Gildo. (630) 834-1550.

EXERCISE EQUIPMENT - Schwinn Airdyne bicycle, like new. \$200. ProForm Treadmill, in good condition, \$150. Toni Freckelton. (815) 730-3439.

RAM - 2 Nanya 512mb stick of RAM for notebook, DDR2, PC2-5300, In excellent condition (used only for less than 1 hour). \$20 each. Essam El-Hannouny. (708) 668-6999.

DANIA FURNITURE - Oak computer desk with stand. \$40. Bookcase. \$15. Black leather sofa with coffee and end table. \$450. Free entertainment unit. Jerry Gogol. (630) 271-9795.

TREADMILL - folding, Sole F80, 1.5 years old - like new, rarely used, see www.soletreadmills.com and Treadmill-Doctor.com for details, 20-year motor warranty, you transport. \$500 firm. Michael Wiczorek. (708) 233-0021.

SEWING MACHINES - 3 very old sewing machines that all work (I think), 2 Singer, 1 Admiral, live in Newark, IL. \$50 each. Sandra Tollaksen. (630) 661-0906.

CAMPER - 1995 Jayco Series pop-up camper, 12 feet, king and queen beds, stove, furnace, icebox, twin tank, lots of storage, excellent condition. \$2,900 OBO. Jim Oprzedek. (708) 268-5777.

MISCELLANEOUS - Two papasan

chairs w/ khaki cushions. \$50. Two 8' Lithonia fluorescent light fixtures and four 8' fluorescent bulbs. \$30. Efim Gluskin. (630) 271-9923.

MOVING SALE - Like new, 3 piece sofa set. \$45. Trimline treadmill. \$150. 2 leather sofas. \$100. Queen bed. \$100. 8-drawer chest. \$30. Best offer accepted. Ken Chiu. (630) 717-9805.

MISCELLANEOUS - Baby crib w/ mattress. \$25. Loveseat, dark blue. \$20. 3 kitchen tables, ask for pricing and sizes. Children's dresser, small. \$15. Julie McGillen. (815) 715-8130.

AUTOMOBILES

1993 CHEVY - Astro conversion van, 7 passenger, 160K miles, Good Condition, air, cruise, CD player, cloth interior. \$2,000. Ronda Knapik. (815) 545-6572.

1995 NISSAN - Altima, 145K miles, manual transmission, power windows / locks, cruise control. \$1,400. Konstantin Ignatyev. (630) 322-9819.

1992 TOYOTA - Camry sedan, XLE (top of the line), 4-cyl, one-owner, always garaged, 113k, very good and clean condition, full power, moon roof. \$2,700. Ira Charak. (630) 325-2205.

1996 LEXUS - GS300, low mileage, 60,000 mi. Excellent condition. Beige, multi-disk CD player. Well kept. New battery. \$7500. Jim Corsolini. (708) 334-0411.

1997 GEO - Prizm LS4 4-dr., 1.8L, 5-sp. man. trans., A/C, cruise, CD, ABS, moon roof, alloy wheels, more. 168k miles, 34+ mpg, fair cond. \$2,000. Kenneth Dritz. (708) 598-3119.

1998 DODGE - Grand Caravan SE (Green), 125K miles, Very good. Urged to sell. \$3,000 o.b.o. Leopoldo Suescun. (630) 835-9601 or leopoldosuescun@hotmail.com.

2006 TOYOTA - Rav4 sport utility 2WD, 2.4L, black, AT, all power, cruise, 26k miles, excellent condition, 4-year warranty, rust and stain protection. KBB price: \$21K, selling for \$18K. Ryoji Kiyanagi. (630) 207-8471.

1976 CHEVY - Corvette Sting Ray T-top, super clean, 83k miles. \$15,000 OBO. Andy Mosele. (708) 508-1690.

2000 CHEVY - Silverado 2500 extended cab, 8 ft bed, 4X4, 96K miles. One owner, well maintained, charcoal gray, graphite leather interior plus lots of extras. Very clean. \$12,000 or best offer. Nicole Gladney. (630) 926-7836.

HOUSING

TOWNHOUSE/SALE - For sale in Lockport: 3 bedroom, 2.5 bathroom, 2 car attached garage end unit with private entrance. Master bedroom suite with private bath and WIC. Formal dining room, living room with vaulted ceilings, fireplace. Less than 2 miles from I-355. \$224,900. Patti Pedergrana. (815) 834-1420.

MOBILE HOME/SALE - In Sedona, AZ. A 1971 Century mobile. 12' x 60', two bedrooms, 1 bath, Utility Room w/ washer and dryer, new carpet, evaporation cooling, deep car port, full canopy at entrance. Only 55+ park. \$19,000 + \$500/mo for rental of lot 50' x 100'. Eileen Johnson. (708) 352-5691.

HOUSE/SALE - For Sale in Aurora (far east side): 3-bedroom colonial, 1.5 bathrooms, fireplace, new carpeting, new siding, new roof, windows, doors, garage door, kitchen cabinets, all fixtures upgraded, painted, fantastic landscaping & curb appeal, 2-car attached garage, and more. SD 204. \$244,900. Michael Rosenow. (630) 430-7362.

HOUSE/SALE - Green Trails 3-Bedroom, 2.5 bath, school district 203. Move-in condition. Vaulted living-dining rooms, fireplace, full finished basement. New

hardwood and Italian ceramic floors, new brick patio. Lisle, \$409,900. Maria Iavarone. (312) 593-7247.

HOUSE/SHARE - Close to the lab, fully furnished, private bath, utilities included. Female preferred. \$450/month. Rose Lee Pausche. (630) 739-0126.

CONDO/RENT - 3br/2ba condo in Lemont. Great location, close to I55 /355, & Argonne. Steps from Metra train. Bruce Hoster (630) 292-2975.

CONDO/SHARE - Share furnished 3 bedroom, 2 bath condo with hi-speed internet and cable. 116 Carriage Way, Burr Ridge. Enos Baker. (702) 501-0607.

HOUSE/SALE - 10 minutes from lab, 4BR, 2.5BA, Large family room w/ wet bar, kitchenette and fireplace, large "great room" with hot tub and 2nd fireplace, updated throughout, Darien. \$395,000. Susan Webster. (630) 963-9604.

HOUSE/SALE - Del Webb 55+ community, 2 bed plus den, 2 years old, Shorewood. \$249,900. Judith Zero. (815) 741-6867.

TO BE GIVEN AWAY

PARAKEETS - Free to good home 2 Parakeets with cage and all accessories. One is all white, the other is blue/green/yellow and both are very friendly, and healthy, ask for Lori for more information. Greg Banks. (815) 919-5756.

LOST AND FOUND

FOUND - pair of women's brown Magnivision reading glasses. Found in Building 302 Conference Room. Sandy Guendling. Ext. 2-4888.

FOUND - A key on a unique keychain on Northgate Road (N side of road) east of WF Glen parking lot, west of frontage rd parking lot. Michael Rosenow. (630) 430-7362.