

Mizzou Weekly

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Nuclear researchers attempt to locate new source of renewable energy



In 2011, John Gahl, professor of electrical engineering and director of MU's Material Science Program, received a Mizzou Advantage grant to conduct low-energy nuclear reaction experiments using the Reactor's cyclotron. Rob Hill photo.

MU RESEARCH REACTOR

Replicating heat reaction is primary goal

Not long ago, the idea that a scientist could generate energy using little more than a beaker of water, a bit of metal and some electricity was met with widespread skepticism.

Today, so-called low-energy nuclear reactions, or LENR, are being recorded in laboratories around the world. Scientists from the Naval Research Laboratory, the National Energy Laboratory of Italy, as well as research teams in France, Japan and Israel have all observed the phenomenon — a wallop of heat when electricity is applied to palladium, nickel or platinum submerged in deuterium-enriched water.

Many scientists are convinced that a new source of clean, cheap renewable energy is within reach. But the experiments to generate the heat don't always work, and when they do, experts can't agree why.

MU researchers are trying to understand the physical science behind the heat effect. Last February their research received a monetary boost via a \$5.5 million gift from philanthropist Sidney Kimmel.

Kimmel gift helps research

Some of the research at the Sidney Kimmel Institute for Nuclear Renaissance will take place at the MU Research Reactor, the largest and most powerful university-based reactor in the country. In 2011, John Gahl, professor of electrical engineering and director of MU's Material Science Program, received a Mizzou Advantage grant to conduct low-energy nuclear reaction experiments using the Reactor's cyclotron.

Gahl said the Kimmel gift allows him and his colleagues to build on that research, which involves shooting particle beams of deuterium at palladium isotopes under various conditions. The results could help researchers evaluate the different theories proposed for the heat effect.

"We're taking a look directly at the theoretical constructs that have been put forward as a way to explain these phenomena," Gahl said. "The theories are falsifiable, so we should be able to construct experiments to show whether this theory or that theory is absolutely incorrect."

Researchers will also be working with scientists from Energetics Technologies, a private company that set up shop at MU's Life Sciences Incubator two years ago. With financing from Sidney Kimmel, Energetics has been working on commercial applications for low-energy

nuclear reactions, focusing on what the company calls the SuperWave fusion process.

That process was featured in a *60 Minutes* segment in April 2009. Rob Duncan, MU vice chancellor of research and a physicist, was asked by the CBS news program to evaluate Energetics' scientific claims. Duncan came away impressed with the possibilities of the heat reaction.

Federal investment needed

In a 2009 review of the science, the Defense Intelligence Agency reported that low-energy nuclear reaction research was "increasing and gaining acceptance" worldwide, most notably in Japan and Italy. Russia, China, Israel and India have also committed considerable resources to the research "in the hope of finding a new clean energy source," according to the agency.

The report concluded that whoever harnesses the reaction for commercial use "could revolutionize energy production and storage for the future. The potential applications of this phenomenon ... are unlimited."

Yet Duncan estimates that only \$2 million in public money has been invested in trying to understand the anomalous heat effect. "I think it's unusual, given the body of evidence, that there isn't more money being spent to inquire what's going on," he said.

Duncan said federal investment is important because it could speed development of the technology. As it stands, while privately funded labs are reporting results, most of the research is considered proprietary and not readily available publicly to other researchers.

"Competitive grants — awards based on proven scientific merit — are the key to really getting at what is happening," Duncan said. "Because then clever research groups around the country can apply for federal funding to try and figure it out."

Harnessing heat reaction

Figuring out why anomalous heat is generated is only one piece of the puzzle, said David Robertson, professor of chemistry and associate director of research at the Reactor. Scientists need to nail down the specific conditions under which the heat effect can be repeated.

Right now, the success rate is roughly 20 percent, according to Robertson. That means that four of five experiments fail to generate the heat. Identifying and correcting those mistakes could uncover the secrets that lead to an alternative form of energy.

"Quite frankly, our technology has gotten to the point where, if we can reproduce the excess heat effect and we know what's going on, we know how to harness it," Robertson said. "That's not the hard part."

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- [Nuclear researchers attempt to locate new source of renewable energy](#) Replicating heat reaction is primary goal
- [Faculty share triumphs, challenges of teaching Writing Intensive courses](#) Applications for fall faculty program are being accepted
- [Applications being taken for open committee and Staff Council positions](#) Applications can be filed online
- [MU School of Law to host run, walk and dog walk on Saturday](#) Late registration is available Friday and Saturday
- [Experts in law, medicine and religion debate the contraception issue](#) Catholic Church remains opposed to contraception
- [Professor receives advising award](#)
- [Social workers should be juvenile probation officers, MU professor says](#) Opportunity exists to re-evaluate treatment of teen offenders

[More in the archive »](#)

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Faculty share triumphs, challenges of teaching Writing Intensive courses

CAMPUS WRITING PROGRAM

Applications for fall faculty program are being accepted

On the last Friday of each month, 10 MU faculty members meet at the Conley House to exchange ideas, thoughts, problems and successes related to teaching Writing Intensive (WI) courses.

New for this semester, the seminar, run by the Campus Writing Program (CWP), is not like other tutorials or retreats the CWP has available for faculty. Only professors who have taught Writing Intensive courses for years attend it.

Since 1987, every undergraduate degree granted by MU has come with the Writing Intensive requirement, which calls for students to take English 1000 followed by two WI courses.

The CWP works with the Campus Writing Board to review and approve courses that emphasize writing. Over 170 courses from disciplines across the university are offered each semester. All WI courses use writing as a tool for thinking and learning. One WI course may be taken in any discipline, while the other must be an upper-division WI course within the student's major.

The Campus Writing Program works with faculty in developing WI courses and holds regular seminars and tutorial sessions for faculty to better their writing skills.

"These seminars are critical to the long-term viability, momentum and health of Writing Intensive programs at MU," said participant Glen Heggie, a clinical professor in the School of Health Professions.

Amy Lannin, director of the Campus Writing Program, explained that many of the programs her department has in place are focused on the development of new faculty members or faculty new to Writing Intensive teaching. By contrast, the seminar for veteran WI teachers offers participants a chance to share their work with like-minded colleagues in a supportive and interactive environment.

"These faculty don't want to work in a vacuum," Lannin said. "They want to share ideas and hear other faculty members' thoughts on teaching. They want to continue to develop their own teaching."

In addition to hearing about new practices and teaching methods, the seminar provides an opportunity for participants to share their experiences with faculty who have similar stories.

"It's a chance to see how others, from a wide range of subjects, use writing in the curriculum," said seminar participant Wayne Brekhus, an assistant professor of sociology. "You see commonalities across the variety of fields, but there are also differences. To be able to discuss those is very beneficial."

It is also a chance for faculty to refresh their knowledge of teaching WI courses.

"Several faculty have projects that they put in place many semesters ago," said Bonnie Selting, a Campus Writing Program coordinator who designed and initiated the new seminar. "This encourages faculty to find new techniques for utilizing writing in their teaching."

In the case of Deanna Sharpe, an assistant professor in the personal financial planning department, learning new methods is just part of what she has gained from the seminar.

“Teaching Writing Intensive courses requires much thought and incorporates another way of grading and administration,” she said. “Being able to meet with others committed to using writing in the teaching process is very energizing.”

The participants run the seminar by taking turns giving presentations. At the February gathering, Sharpe led a conversation about teaching Writing Intensive in a large classroom.

The presentations usually lead to discussions, which can last well beyond the allotted two hours.

“I think that shows their enthusiasm and that they are finding great value in the seminar,” Selting said.

Seminar participation is by invitation only and a stipend is provided for those who attend. Those two elements add to the uniqueness of the program. Applications are currently being accepted for faculty interested in participating in the seminar next fall.

If those participants are anything like the current group, they will see this as an opportunity to continue to develop their teaching. They will also find benefit in meeting with other faculty who have experiences to share.

“It’s like the commercials say,” Heggie said, ‘It’s nice to know you’re not alone.’ ”

For more information on the Campus Writing Program, contact Bonnie Selting at seltingb@missouri.edu.

— *Josh Murray*

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Applications being taken for open committee and Staff Council positions

OPEN POSITIONS

Applications can be filed online

Interested in getting more involved with on campus committees for fall semester? The following committees will have openings beginning September 1:

- Campus Mediation has one opening.
- Campus Planning Committee openings has two openings.
- Campus Recreation Committee has one opening.
- Campus Safety Committee has three openings.
- Family Friendly Campus Committee has four openings.
- Committee on Committees has one opening.
- Concerts Committee has one opening.
- Environmental Affairs has two openings.
- Hearnes Center Committee has one opening.
- Intercollegiate Athletics Committee has one opening.
- Library Committee has one opening.
- Minority Affairs Committee has one opening.
- Persons with Disabilities Committee has two openings.
- Retiree, Health & Other Benefits Advisory Committee has two openings.
- Status of Women Committee has one opening.
- Traffic Appeals Committee has two openings.

You may apply electronically at committees.missouri.edu/ or by printing the online form and mailing to Staff Advisory Council, Campus-Wide Committees, 27 Jesse Hall.

Also, there are seven council seats up for grabs in the Student Advisory Council elections.

Eligible nominees include full-time MU Campus or Extension staff who have completed one year of work prior to nomination. Staff members can nominate colleagues or themselves.

Elected members will serve a three-year term starting September 1.

Deadline for committee and Staff Advisory positions is May 25.

For more information, contact the Staff Advisory Council office at 882-4269. You can also go online by going to staffcouncil.missouri.edu/index (<http://staffcouncil.missouri.edu/index>) and clicking the tab Volunteer Opportunities.

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MU School of Law to host run, walk and dog walk on Saturday



MU law students (from left) Kate Gallen, Katie Vogt and Charity Whitney pet Cheech, an adult terrier mix, at Speaker's Circle Monday, April 16. Cheech was on hand for a registration event for the "Tim Heinsz 5K Run" and "Jim Devine Memorial Dog Walk" happening Saturday, April 21. Cheech will participate in the leashed dog walk. Nicholas Benner photo.

CANINE EXERCISE

Late registration is available Friday and Saturday

MU law students will link the eighth annual "Tim Heinsz 5K Run" and "Jim Devine Memorial Dog Walk" for a second year Saturday in honor of two well-respected deceased MU law professors.

"[Heinsz and Devine] really contributed a lot to current students and past students alike, so it's our way of giving back to them," said organizer Kate Gallen, an MU law student.

The student-hosted event will bring runners, walkers and leashed dogs together to raise law school scholarship funds. The race will start at 9 a.m. in front of Hulston Hall.

Last year, more than 385 participants raised more than \$25,000, which is close to the amount raised this year.

"It's been wildly successful," said Bob Bailey, an MU law professor and director of the school's Study of Dispute Resolution center. Bailey worked with Heinsz and Devine for about 30 years.

Heinsz, a former dean of the MU School of Law, died in 2004 of a heart attack. Devine, a former associate dean of the school, died six years later of a heart attack.

Heinsz was a nationally recognized arbitrator. Bailey portrayed him as hard working, thoughtful and immensely kind.

The day after he died, Bailey received a happy birthday email from him. Heinsz had pre-sent the birthday wish.

“I immediately broke down in tears,” Bailey said. “He was my best friend.”

While cleaning out Heinsz’s office, Bailey found a cabinet drawer full of gifts that Heinsz had purchased for others.

He similarly described Devine as caring and dedicated.

Devine had three great loves: his family, swimming and dogs, which he often rescued from shelters, Bailey said.

When Devine died in 2010, students asked Bailey if they could add a commemorative dog walk to honor Devine to the Heinsz memorial run.

Gallen said both professors completely supported their students, personally and academically.

“I think the legacy that they have left on the law school is one of dedication and service,” she said.

— *Lauren Foreman*

“Tim Heinsz 5K Run” and “Jim Devine Memorial Dog Walk”

What: A walk, run and dog walk at 9 a.m. Saturday in front of Hulston Hall. Arrive no later than 8:30 a.m. Event will be held rain or shine.

Registration: Late registration is in the sub-plaza of Hulston Hall 10 a.m.–7 p.m. Friday and 7–8:30 a.m. Saturday. Registration is \$20.

Register online at law.missouri.edu/sba/th5k/register (<http://law.missouri.edu/sba/th5k/register>).

Participants: All are welcome, including leashed dogs.

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Experts in law, medicine and religion debate the contraception issue

DIFFICULT DIALOGUES

Catholic Church remains opposed to contraception

An MU Difficult Dialogues forum on April 4 sparked discussion about a controversial federal mandate requiring religious institutions to include free contraception in health care coverage.

More than 80 MU faculty, students and community members filled a Hulston Hall classroom to debate the merits of the national controversy.

Panelists included medicine, law, gender and religion experts, who provided historical and medical context before launching a debate that has prompted religious rallies, health care plan changes and four ongoing court cases across the country.

Audience members asked panelists questions about the burden on women to pay for contraception and birth control, the responsibility of religious institutions as employers and the timing of the backlash to the federal legislation.

Last January, the Obama administration mandated that employee health insurance plans include free birth control by August 1, 2012. The deadline for religious institutions to adopt the plan is August 1, 2013.

Twenty-six states, including Missouri, have passed laws requiring insurers that cover prescription drugs to also offer FDA-approved contraception, according to the National Conference of State Legislatures. Missouri and 17 other states also offer religious exemptions.

Rigel C. Oliveri, an MU professor of law, said the only provision the new rule adds is stripping the deductible or co-payment requirement. "Just as we want churches to do good work, we also want them to obey the generally applicable laws that we have for very good reasons," she said.

MU law professor Joshua D. Hawley pointed to 120 years of court decisions giving religious organizations the right to choose their leaders, structure, rites and practices.

He said the ongoing question is: Should government be able to force religious organizations to pay for contraception even though it's against their religious beliefs?

For many religious organizations and institutions, the answer is no.

The Catholic faith is opposed to contraception and upholds the value of all people, said JoAnn Jorgovan, an assistant director at St. Thomas More Parish & Newman Center in Columbia. Rejecting the fertility of women means rejecting women entirely, she said.

John Baker, a former senior pastor of the First Baptist Church of Columbia, said the teachings of religious leaders do not always align with the practices of the people.

He gave an example of birth control used for health reasons rather than reproductive regulation.

"It's not just the morality of contraception that we're talking about," Baker said.

Health and women's rights activists argue that contraception health care coverage protects reproductive and health care rights for women.

Rebecca Martinez, an MU women's and gender studies professor, said that in the past pregnancy could prevent women from working. The 1978 Pregnancy Discrimination Act now makes pregnancy-related discrimination illegal. But unplanned parenting can add psychological and health barriers to employment for women, Martinez said.

Shawna Strickland, an MU medical associate professor, said her focus is the importance of informed consent.

"I'm hesitant to say that birth control is bad," she said. "

But I'm also hesitant to say that birth control is good because like every other drug on the market there are good and bad aspects."

— *Lauren Foreman*

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Professor receives advising award

Sonja Wilhelm Stanis, an assistant professor in the parks, recreation and tourism department in the School of Natural Resources, received last month the Advisers Forum Advising Shout Out award.

Stanis, who counsels undergraduate and graduate students, was nominated by one of her advisees.

"I am very proud and honored by this award," Stanis said. "I work hard to help students navigate not only their courses, but also other opportunities and challenges during their experience at MU.

"It is very rewarding to know that those efforts are recognized and appreciated."

The award, which was first presented in December 2010, is given twice a semester and recognizes undergraduate advisers for the impact they make on students' lives.

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Social workers should be juvenile probation officers, MU professor says



Clark Peters, assistant professor of social work and an expert on juvenile justice and child welfare, contends that social workers need to return to the juvenile corrections system and reclaim their role as rehabilitators at the front line of services. Rachel Coward photo.

RETHINKING JUVENILE REHAB

Opportunity exists to re-evaluate treatment of teen offenders

In the pioneering days of the juvenile corrections system, social workers often served as the primary probation officers who rehabilitated young offenders. As law enforcement officers increasingly dominated the field of corrections, however, social workers were relegated to ancillary roles.

Clark Peters, assistant professor of social work and an expert on juvenile justice and child welfare, contends that social workers need to return to the juvenile corrections system and reclaim their role as rehabilitators at the front line of services.

Rather than emphasize incarceration and punitive measures, as law enforcement does, the system needs social workers adept at building relationships and counseling, Peters said. But it shouldn't end there.

"[Social workers] ought to be the probation officers," he said.

Social workers were significantly involved in the juvenile corrections system early in the 20th century, but less than 2 percent of trained social workers are employed there today, according to the National Association of Social Workers.

Returning more of them to the system might help alleviate overcrowding in America's jails and prisons. Indeed some states, Peters said, are fighting the rising incarceration costs by re-emphasizing community-based probation programs that help juveniles improve their odds of becoming productive societal members.

Opportunities exist to re-evaluate how teen offenders are treated, said Peters, who published an article on the subject last month in *Social Work*, a journal of the National Association of Social Workers. "There is a tremendous amount of attention and

resources being put in place to deal with offenders in more constructive ways” than punitive measures, which have dominated America’s rehabilitation system for the last 30 years.

“It is a less effective way than how social workers approach the problem,” he said.

“Social workers are trained to bring a more constructive, holistic view on how to deal with teen offenders through counseling, developing relationships with family and friends, and engaging in school activities,” Peters said. “All these things are associated with reducing [repeat offenses] and helping young people get back on track with their lives.

“An opportunity exists now to re-evaluate how we treat offenders in this country.”

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