SUMMER 2014 | Vol. 6, No. 1

HOTLINE

FIRE PROTECTION ENGINEERING

A. JAMES CLARK SCHOOL *of* ENGINEERING

www.fpe.umd.edu

FPE Appoints First Clinical Professor

JIM MILKE, PH.D, P.E., FSFPE, B.S. '76

JIM MILKE
PROFESSOR AND CHAIR

Several positive developments have occurred within the department during the last academic year. The most significant of these is the creation of the Clinical Professor position. I am pleased to announce that the department's first Clinical Professor will be Mr. **Kenneth E. Isman** (B.S. '86).

Ken will join the department faculty this August. He will be responsible for teaching a group of applied classes that will include the design of fire protection systems, such as suppression systems, which is his particular area of expertise. Financial support from A. James Clark School of Engineering Dean **Darryll Pines** enabled Ken's hiring and arrival while the Legacy Campaign, which endows the position, is still ongoing. For the full story, visit **ter.ps/fpeclinprof**.

Other noteworthy developments in the department touch virtually every area of our activities, including enrollment, curriculum, research, staffing and outreach.

ENROLLMENT. Recruitment for our undergraduate program remains a priority. With the addition of **Nicole Hollywood** a little over a year ago, we have been able to appreciably expand our recruiting efforts. Significant new activities include:

Open House: A half-day session offered 3 times during the last year, complete with presentations, demos, and hands-on activities.

Lab Tours: We're now included on 'the circuit' of lab tours conducted in the Clark School.

A Special Program: "Intro to Math and Physics through Fire Dynamics," developed and delivered by **Isaac Leventon** (a B.S. and M.S. alumnus, currently a Ph.D. student) was offered twice in the last year with the intent of introducing high school students from underrepresented minority populations to FPE.

For more information about current enrollment, see Nicole's column on page 2.

CURRICULUM. We offered a new graduate course on material flammability in the spring semester and will be offering a new course on wildland fires as part of our effort to increase the number of graduate courses available. Distance courses are in the process of transition, with video components being included in each one.

We are initiating a formal study into the viability of a Ph.D. program in the department. In recent years, our faculty members have served as principal advisors for 15-20 Ph.D. students. Though formally pursing their degrees in other engineering fields, these students take our classes and are full members of our research groups.

RESEARCH. Research support in the department continues to increase (while overall support in the Clark School has declined slightly). For the fiscal year ending in June 2013, research expenditures were in excess of $1.6M, about 20% greater than the previous year. For the current fiscal year, which ended June 30, the research expenditures appear to be slightly above those from FY'13. The funding of Dr. **"Stas" Stoliarov**'s NSF CAREER proposal (see page 3) marks the fourth in a series that has been funded by the prestigious program, including those of Drs. **Trouvé**, **Marshall** and **Sunderland**.

FACULTY & STAFF. I'm pleased to announce that Dr. **Arnaud Trouvé** has been promoted to full professor. Dr. Trouvé joined us in 2001 and has been a key contributor to the department's activities in the area of fire

continues on back page

PHOTO OF DR. MILKE BY ALAN P. SANTOS.

IN THIS ISSUE:

HOTLINE IS PUBLISHED FOR ALUMNI AND FRIENDS OF THE DEPARTMENT OF FIRE PROTECTION ENGINEERING AT THE A. JAMES CLARK SCHOOL OF ENGINEERING, UNIVERSITY OF MARYLAND. YOUR ALUMNI NEWS AND COMMENTS ARE WELCOME. PLEASE SEND THEM TO:

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FAYE LEVINE

programNEWS

NICOLE HOLLYWOOD
ASSISTANT DIRECTOR

I am pleased to announce that our incoming freshman class has the largest population of women to date: 8 out of 11 students! Our overall percentage of female students has increased from 26% in 2013-2014 to 38% for the upcoming academic year. I am grateful to the department's female student leaders for their help in facilitating this shift in the makeup of our undergraduate program. Our overall undergraduate enrollment remains consistent at just over 100 students.

There were 29 spring term graduates: 19 B.S., 9 M.S. and M.Eng., and 1 Ph.D. There are approximately 200 students enrolled in all degree programs, about half of whom are graduate students. That number includes 19 from the Department of Mechanical Engineering's Ph.D. program who are advised by FPE faculty members.

We also have a record number of students studying abroad in Fall 2014. Four will be attending the Technical University of Denmark. We'll share more in future newsletters about what our students are doing while abroad—whether for study or employment.

After a year in my role with the department, I know that FPE is in a perfect position to grow its undergraduate program. To do so, outreach and recruitment is critical—and I need your help! If you are local and interested in helping us recruit, we have multiple new initiatives we are exploring and I would be happy to help you find the best means by which you could assist.

If you are not local, but still wish to help, contact me directly if you are willing to present to school-aged children about fire protection engineering or inform high school students in your area about the many exciting career opportunities in FPE.

Finally, I would like to increase our exposure among current students who are interested in engineering but not yet in the Clark School. Therefore, in the fall, we will be providing an Open House to community college students, undecided engineering students, and those in other UMD majors. This Open House will have the same format as our inaugural FPE Open Houses for high school students offered this past academic year.

For more information, contact me at **nlholly@umd.edu** or **301-405-3994**.

PHOTO OF NICOLE BY ALAN P. SANTOS.

campaignNEWS

ALLISON CORBETT
DEVELOPMENT OFFICER

May was a milestone month for the Legacy Campaign for a Professor of the Practice as we surpassed the halfway mark of our $2,500,000 goal. While **Bill Koffel** was on campus, where he was addressing a departmental professional development class, he took the time to finalize his pledge on behalf of **Koffel Associates** for a $100,000 commitment to the campaign. We are thankful to Koffel Associates and to all of the many donors (see **fpe.umd.edu/legacy-donor-list**) who have contributed to the success of this campaign. With the exciting news that the Clinical Professor position will be filled by **Ken Isman** starting this fall, meeting our campaign goal becomes even more important. If you'd like to help, please consider your own gift.

To get started, visit **fpe.umd.edu/legacy-campaign**, or contact me at **acc@umd.edu** or **301-405-5841**.

Understanding the Flammability of Charring Polymers

RESEARCH AT CROSSROADS OF FIRE PROTECTION ENGINEERING AND MATERIALS SCIENCE

Assistant Professor **Stanislav I. Stoliarov** received a 5-year, $412,000 NSF CAREER Award for his proposal to quantitatively model how polymers produce char, the insulating layer of carbon that forms on the surface of an object as it burns. Applied to the design of flame-resistant materials, the model could improve safety while reducing development costs and the need for brominated flame-retardants (BFRs).

Synthetic polymers, often in the form of plastic, are all around us, in almost everything we use, wear, play with, build with, and drive. Many of these plastics are derived from petroleum, which makes them highly flammable. BFRs are often used to counteract their flammability, but concerns have been raised that the additives could have a negative impact on the environment and human health. Better polymer design could reduce or eliminate the need for BFRs, and the way to do that, Stoliarov believes, is to improve how they char.

Burning a marshmallow is an easy way to observe the formation and effect of char. Once ignited, the marshmallow swells, bubbles and blackens. The char becomes a natural thermal energy barrier. When it covers most or all of the marshmallow's surface, the flame goes out, leaving the inside gooey, but not burnt. Removing the char or pulling the marshmallow apart reveals pockets of air inside. The size, position, and density of these voids, called cells, affect how heat flows through a material, which in turn affects how the char is formed. An effective layer of char, which slows polymer degradation and reduces the burn rate, is a key factor in designing safer materials.

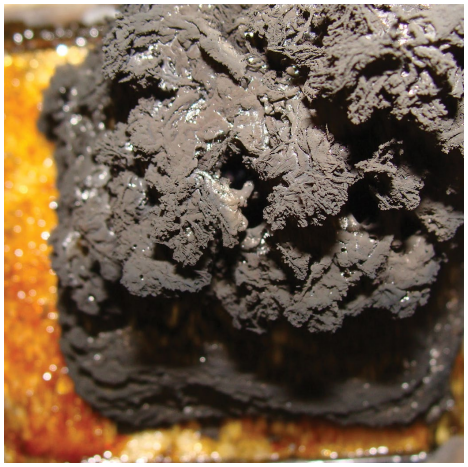
Currently, not much is known about char growth dynamics, in part because char and cell formation vary widely among polymers. There are no established methods of quantifying its ability to insulate or its morphology, and no accepted models that relate its structure to heat transfer. This makes the development of flame-resistant materials an expensive, inefficient process that often relies on trial and error.

Stoliarov believes that establishing a three-dimensional, transient, multiphysics numerical model for char will enable industry to fine-tune materials for the right balance of safety, cost, and mechanical properties. To obtain data for the model, he and his team are conducting an array of experiments that allow them to precisely record the effects of heat on the physical and chemical properties of polymers.

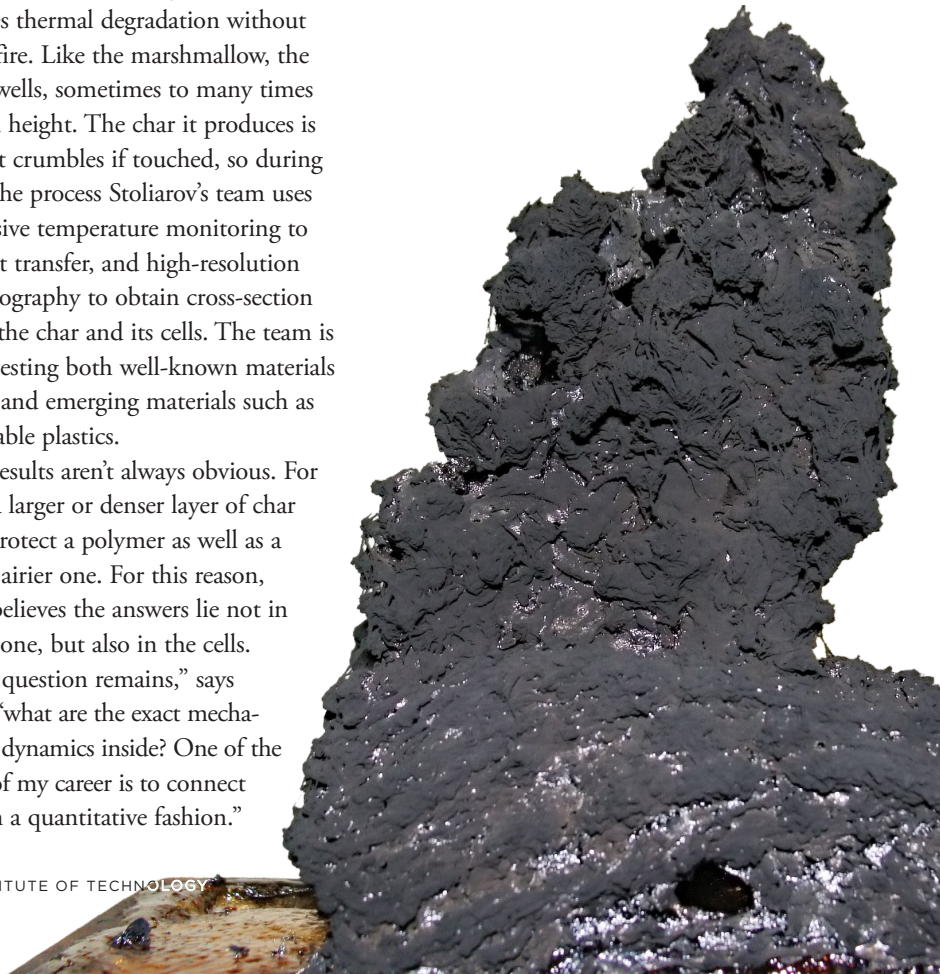
In a process called controlled condition pyrolysis, polymer samples are placed in a chamber with an inert atmosphere, and then gradually heated to high temperatures. This causes thermal degradation without starting a fire. Like the marshmallow, the polymer swells, sometimes to many times its original height. The char it produces is so fragile it crumbles if touched, so during and after the process Stoliarov's team uses non-intrusive temperature monitoring to record heat transfer, and high-resolution X-ray tomography to obtain cross-section images of the char and its cells. The team is currently testing both well-known materials like PVC, and emerging materials such as biodegradable plastics.

The results aren't always obvious. For example, a larger or denser layer of char may not protect a polymer as well as a smaller or airier one. For this reason, Stoliarov believes the answers lie not in the char alone, but also in the cells.

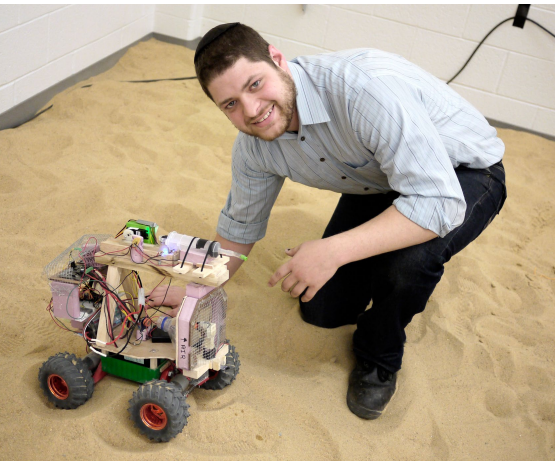
"The question remains," says Stoliarov, "what are the exact mechanisms and dynamics inside? One of the key goals of my career is to connect the dots in a quantitative fashion."



A CHARRED SAMPLE OF BISPHENOL A (BPA) POLYCARBONATE. THE ORANGE SURFACE HERE AND IN THE PHOTO BELOW ARE NON-DEGRADED OR PARTIALLY DEGRADED POLYMER IN THE PROCESS OF BEING CONVERTED TO CHAR.



Putting an FPE Spin on a Clark School Rite of Passage



BERNIE KRAMER WITH THE FIREFIGHTING ROVER.

Imagine if, as a junior or senior, you had the opportunity to contribute to your own curriculum, enhancing it for the students who come after you. What would you do if you could redesign one of the most important undergraduate engineering assignments in the Clark School?

This year, in ENES 499: Senior Projects in Engineering, that is exactly what students were asked to do, and one team put a fire protection engineering spin on the legacy they hope to leave.

FPE rising senior **Bernie Kramer** was one of the students who accepted the challenge to create a new project for ENES 100: Introduction to Engineering Design that will eventually replace its autonomous hovercraft design competition, a rite of passage for all Clark School students.

ENES 499 students didn't just design theoretical assignments—they had to do them, and demonstrate that new engineering students could successfully complete them too. Kramer's group proposed an autonomous firefighting rover that must navigate a large sandbox.

The rover must overcome obstacles, detect and suppress one or more fires, collect liquid samples with a syringe, and identify those samples with its sensors.

After detecting and navigating to fires, the rover can blow them out with its onboard fan. If its syringe contains a sample previously identified as water, it can also be used to extinguish the flames, thanks to a special misting nozzle Kramer designed for it.

Kramer, an ENES 100 undergraduate teaching fellow, decided to take ENES 499 when he heard about its Spring 2014 theme. ENES 100, a national model for increasing engineering student retention and graduation rates, had a significant impact on his own academic experience, and he welcomed the chance to become even more involved.

FPE Hosts Fire Science Session for Maryland Counts

Children from four regional elementary schools recently learned about basic fire science from FPE graduate student **Isaac Leventon**. The visit was part of Maryland Counts Day, a campus tour for students participating in America Reads*America Counts. The after-school program, which provides reading and math tutoring for fourth-grade students, is made possible by a partnership between the University of Maryland and Prince George's County Public Schools.

The students were celebrating their academic accomplishments by taking part in activities that highlighted the things that understanding math makes possible, meeting University of Maryland students, and discovering what a college campus is like.

In the Rolf Jensen & Associates Fire Science Laboratory, Leventon (after warning the students they should not try what he was going to show them at home) began by explaining what fire is, and the three things required for starting one: air, heat, and fuel. Using a candle and small pool fires, he showed the students how changing or removing any one of these affected the flame. He discussed flame temperature and structure, how soot forms and behaves, how a container affects the size and shape of a flame, and how a flame gets its color from the particles released by its fuel.

Popular demonstrations (conducted at a safe distance) included burning alkali metal salts to change the color of a flame; changing air currents to create a miniature "fire tornado"; and lighting a dollar bill on fire without burning it to show how different fuels vaporized at different temperatures.

"I'm quite lucky to be able to participate in this event," says Leventon. "I truly enjoy being able to share and explain such a seemingly complex phenomenon in a straightforward, easy-to-understand way, especially when the audience is so fun to work with."

He hopes his demonstrations excited the students and will inspire them to explore these topics when they return to school. "Science and math are both awesome," he adds, "even more so when we can use them to understand the world around us."

Isaac Leventon also teaches a course for high school students. To learn more, visit: **fpe.umd.edu/hs-intro**

"Having a project like [the hovercraft] to work on right off the bat really made me fall in love with engineering," he says. "ENES 100 is [about] giving you a crash course in what it's like to be an engineer and to work in cross-disciplinary teams." The most inspiring part of the class, he adds, is that students with little or no background in engineering are able to produce something "truly remarkable" by the end of a single semester.

ENES 100 instructors have announced that aspects of what each ENES 499 team learned and proposed will be incorporated into the project that will replace the autonomous hovercraft.

For the full story, visit: **ter.ps/kramer499**

For more information and a video about ENES 100's hovercraft competition, visit: **www.keystone.umd.edu/courses/enes100**

IN THE LAST TWO YEARS, WE HAVE OFFERED A RESEARCH EXPERIENCE IN THE SPRING SEMESTER TO OUR TOP SOPHOMORES. IN SPRING 2014, THE PROJECT WAS LED BY DR. **JIM MILKE**, WITH ASSISTANCE FROM FPE JUNIOR **CARA HAMEL** (WHO PARTICIPATED AS A SOPHOMORE IN 2013). THE 2014 PROJECT INVOLVED THE DEVELOPMENT OF AN EXPERIMENTAL PROTOCOL FOR ASSESSING THE NUISANCE ALARM REJECTION CAPABILITIES OF PROJECTED BEAM DETECTORS. THE SUPPORT OF **WAYNE AHO** AND **XTRALIS** IN PROVIDING EQUIPMENT AND TECHNICAL ADVICE IS GREATLY APPRECIATED.

Theodori: Bryan Graduate Research Assistantship Award

Senior **Maria Theodori** has been awarded the 2014 John L. Bryan Graduate Research Assistantship. After receiving her B.S. this December, she will join the department's graduate program in January 2015.

Theodori, who will be advised by Professor **Arnaud Trouvé**, will work to improve and validate simulations of wildfire spread behavior generated by EnKF-FIREFLY. This data assimilation algorithm, created by Trouvé and his collaborators, is used to reduce uncertainties in estimating fire dynamics. Theodori's goals are to create more accurate wildfire forecasting, improve suppression strategies, and track the fires' after-effects on the environment.

"Wildfires have become a topic of great concern because of the difficult-to-predict nature of flame propagation and the toxic emissions that come from those flames," she explains. "Research has been conducted on developing forecast capabilities for wildfire spread using data assimilation. The research-scale models have been successful, but have not yet taken into account large-scale spatial variations of wildfire parameters such as topography, wind speed and direction, and different types of biomass fuel. Our objective is to use large-scale data from either a past controlled burn or an accidental fire to provide the first real-world evaluation of the FIREFLY model."

Theodori will develop system tests and perform data analysis in collaboration with Assistant Professor **Michael Gollner** (FPE) and Research Assistant Professor **Evan Ellicott** (Department of Geographical Sciences). She will also work with Associate Professor **Kayo Ide** (Department of Atmospheric and Oceanic Science) to produce the data assimilation algorithms the project requires. Her efforts will contribute to a larger project that recently received a University of Maryland Council on the Environment (ConE) Seed Grant for Interdisciplinary Environmental Research.

"I am really looking forward to the research," Theodori says, "and I am so grateful that the assistantship will allow me to complete my Master's degree without financial burden."

The John L. Bryan Chair Endowment funds one GRA each year, awarded on a competitive basis to an outstanding, incoming M.S. student. Successful applicants are selected in part based on the strength of their thesis project proposals.

SFPE Wins Engineering Field Day

The University of Maryland chapter of the Society of Fire Protection Engineers (SFPE) took first place in Engineering Field Day, a competition between engineering societies organized by the Engineering Student Council. The team of ten students proved to be the superior athletes in events including a water balloon toss, hula-hoop contest, four-legged race, and a dizzy bat relay, but their grip on the lead was initially in jeopardy.

"The odds were against us, being down two players at the beginning, but with our team's determination and FPE spirit we were able to pull off a victory," says FPE graduate student **Jerry Taricska.**

"The weather was gorgeous and we had a great time competing against other engineering societies," senior **Maria Theodori** adds. "The win was also pretty sweet after not having placed in the Alumni Cup this year, and we each received $10 Looney's gift cards!"

Theta Tau, the professional engineering fraternity, came in second place, and AΩE, the professional and social engineering sorority, took third.

"[It] provided an opportunity for team bonding within SFPE," says senior **James Turcotte**. "It's nice to have events that bring other engineering students together as well."

recent GRADUATES

DECEMBER '13 M.ENG.

Isaacs, Matthew McClary

MAY '14 B.S. GRADUATES

Al-Sharshani, Bader M.
Brown, Danielle Marie
Davis, Adam Scott
Davis, Seth T.
Ernst, Stephen John
Fan, Jon Senchen
Gebhardt, Grant Frederick
Horden, Eli Samuel
Lookenbill, Daniel Scott
Mellish, Richard Eugene
Praydis, Joseph E.
Raditz, Wilson Miles Cary
Schrumpf, Lauren Elizabeth
Siegfried, Stephany R.
Silverstein, Scott Cameron
Swann, Joshua David
Turcotte, James F.
Welker, Raymond Thomas
Wong, Lisa

MAY '14 M.S. GRADUATES

Hall, Brian
Layton, Thomas

MAY '14 M.ENG.

Chen, Weiyuan
Day, James R.
Mohammad, Mehran
Mushantat, Mohamed Jamil
Stakes, Keith Myers
Takahashi, Sean
Chua, Chi Yuan
Every, Matthew

MAY '14 PH.D.

Li, Jing (Mechanical Engineering): "A Multiscale Approach to Parameterization of Burning Models for Polymeric Materials." Advisor: Stanislav I. Stoliarov.

2014 honors & AWARDS

Congratulations to the following students, who have all demonstrated outstanding scholarship, research skills, and service. Complete citations are online at: **ter.ps/fpeawards14**

Chair's Award: Maria Theodori

Outstanding Senior in Fire Protection Engineering: Derek Post

Robert J. Taylor Academic Achievement Award: Catherine Hamel

Outstanding Sophomore in Fire Protection Engineering: Nick Schraffenberger

In an unexpected twist, one our awardees, **Derek Post**, almost missed the Clark School's Undergraduate Awards Ceremony, but for the very best of reasons. A member of the College Park Volunteer Fire Department, he had been dispatched to the scene of a gas leak in nearby Calverton, Md.!

Once the situation had been resolved, Post, still dressed in his firefighter gear, arrived at the ceremony just as the award presentations began.

"I was wearing my boots and pants, and fortunately one of my Maryland T-shirts," he explains. He asked his classmates, fellow awardees **Catherine (Cara) Hamel** and **Maria Theodori**, whether he should try to disguise his attire with his father's suit coat. "They said, 'No, put your lid [helmet] on, and just walk across the stage.' So I did that, and when Dr. Milke called my name, I had a sense of pride, like, 'This is what I do—sorry for the inconvenience!'" Milke briefly explained the situation to the surprised audience, and presented Post with his award.

2014 UNDERGRADUATE AWARD-WINNERS. LEFT TO RIGHT: CARA HAMEL, MARIA THEODORI, DEREK POST, AND PROFESSOR AND CHAIR JAMES MILKE. NOT PICTURED: NICK SCHRAFFENBERGER.

Fire Safety and 5A Building Codes

Montgomery County, Md. Fire Chief **Steven E. Lohr** (B.S. '90) has many goals for his department, but the issue that concerns him the most is firmly rooted in fire protection engineering and materials science. It concerns a class of construction called 5A, also known as lightweight construction. He feels the building code that governs its design has pushed dangerously close to, and perhaps beyond, an acceptable standard of fire safety.

Older, single-family homes are often "full dimension," meaning they are constructed with a wood frame, floor joists, 2x6 roof components, 2x4 studs, and long nails. "From a practical standpoint," Lohr explains, "they have an inherent amount of fire resistance, even once they're ignited. They're thick…[a fire] has to burn through the surface wood before they would fail."

Newer buildings, especially apartments and offices, use high-performance, engineered materials that lower construction costs. Trusses are smaller and can be stapled together with gusset plates because the material is designed to have greater strength and stability.

STEVEN LOHR (B.S. '90) PHOTO COURTESY OF MCFRS.

"These are all good things, from a construction management perspective, an efficiency perspective, and a loading perspective," says Lohr. "Engineered materials work great–until they're under attack by fire."

It's then, he says, that the chipboard that replaced plywood and the hydrocarbon-based plastics that replaced lumber quickly begin to fail, creating a much faster-developing fire.

"[The risk of] premature collapse is one of the things that makes it very dangerous for firefighters to enter a structure," says Lohr. "When you build buildings out of solidified gasoline—which is what hydrocarbons are—and you space them [only] 30 feet apart, the fire department doesn't have a fighting chance."

It's not just the materials that may put lives at risk. Residential sprinkler systems help save lives, but when they are installed, the building code relaxes other fire protection requirements, such as compartmentation, the use of noncombustible materials, and height and area limitations for certain types of construction. These compromises may undermine how effective a sprinkler system can be.

The codes meant to protect us can become a liability when builders want to save money, Lohr says. When a structure reaches a height of 75 feet, the codes and regulations for high-rise buildings must be followed. These include a full commercial sprinkler system, a backup generator to keep it pressurized if the power goes out, noncombustible construction, and protected stairwells—all of which increase the cost of construction. Lohr has observed a dramatic increase in the number of buildings that are just under 75 feet tall, meaning that lightweight construction is permitted by the code. As a result, fire department access may be limited, the sprinkler density is reduced by half, and a backup generator is not required.

Lohr feels it is his duty to educate both the construction industry and the general public about these risks, which are neither new nor unique to Montgomery County. "My concern is that we, as a community, a system…have stretched the practical limits of good fire protection strategies," he says. "It is really, really an unacceptable risk to both citizens and to the firefighters who will be expected to go in to extinguish fires in these buildings."

MF FIRE, cont'd from back cover

Although earning second place at RECESS did not come with any prize money, Fisher and Myers say the chance to meet influential entrepreneurs and venture capitalists, including Priceline founder **Scott Case**, was invaluable.

"The RECESS pitch competition was a once-in-a-lifetime experience in which we were able to network with other entrepreneurs and venture capitalists," says Fisher. "This has been an incredible journey so far and we are excited about what is still ahead of us."

MF Fire's performance at RECESS was recently the subject of story published by The Washington Post *and the* Maryland Daily Record. *The piece also covered the history of the company, and explored how the unique Mulciber stove could benefit both homeowners and the environment. Visit* **ter.ps/mffirewp** *to read the article.*

LEARN MORE

Watch a RECESS video in which Myers explains how he became involved in FPE and entrepreneurship, and why the Mulciber stove has an important role to play as the EPA proposes new emissions regulations: **ter.ps/mffirerecess**

You can also visit:

mffire.com
facebook.com/MFFire
twitter.com/MFFire

MF Fire: Awards in Competitions, Featured in *The Washington Post*

TAYLOR MYERS (LEFT) AND RYAN FISHER (RIGHT) WITH THE MULCIBER STOVE.

MF Fire, a startup company with roots in the University of Maryland's Department of Fire Protection Engineering, has continued to win awards and recognition at national business plan competitions. Its product is **Mulciber**, an innovative, 93% efficient wood-burning stove with almost unmeasurable emissions.

Co-founded by Department of Mechanical Engineering graduate student **Taylor Myers** (B.S.'12, fire protection engineering) and **Ryan Fisher** (B.S. '12 and M.S. '13, fire protection engineering), MF Fire is hoping to commercialize stoves based on the one designed by Clark School students for the 2013 Wood Stove Decathlon. After their team won the decathlon's Lowest Emissions Award, Myers and Fisher founded MF Fire, went on to compete in the 2014 ACC Clean Energy Challenge, and received a TEDCO Maryland Innovation Initiative (MII) grant to develop the stove's next prototype.

The Mulciber stove, targeted at low-to-mid income households without access to natural gas, includes a forced air system, pressurized combustion chamber, and self-cleaning filter. Its chimney-within-a-chimney warms incoming air and cools exhaust, which improves efficiency and reduces emissions and heat waste. Some of the heat it generates is converted into the electrical energy that powers its fans. It has been profiled by *Popular Mechanics, The New York Times* and *National Geographic*.

This spring, MF Fire won the $25,000 Energy Efficiency Track Prize and a People's Choice Award in the Grand Final round of the MIT Clean Energy Prize competition, held in Boston in April. MF Fire also took second place in the RECESS Pitch competition, held in Las Vegas in May.

"Our team is tremendously excited about our accomplishments and finish at the MIT Clean Energy Prize," says Fisher. "Not only will it help [us] continue our work on the Mulciber stove, but perhaps more importantly we were able to connect and network with [clean energy] professionals in all capacities...Who knows where those types of relationships may take us?"

"It was great to meet a lot of entrepreneurs and energy officials, and get such positive feedback," adds Myers. "One of the judges said that ours was the best presentation he's seen in eight years of listening to business pitches. We're proud to be representing Maryland and so excited for the chance to work on this project."

continues on page 7

STUDENT SOCIETY UPDATE

Our Salamander and SFPE student groups have had a successful end to the year. Both are excited to have elected new leaders for 2014-2015: the SFPE student chapter president will be Ms. **Julie Dicus** ('16) and the Salamander president will be Ms. **Cara Hamel** ('15 and B.S./M.S. candidate).

The SFPE officers are:

Julie Dicus '16: President
Kyle Kohler '15: Vice President
Stephanie Poole '16: Secretary
Jonathan Kilpatrick '15 Treasurer

The Salamander officers are:

Cara Hamel '16: President
Raquel Hakes '16: Vice President
Conor McCoy '16: Secretary
Derek Post '14 (Fall): Treasurer
Maria Theodori F '14 (Fall): Outreach

CHAIR'S MESSAGE, cont'd from cover

modeling. During this last year, we again benefited from outstanding contributions by adjunct faculty, both on-campus and in the distance program.

There were also several staff changes. Our new Program Management Specialist (succeeding Ms. **Pat Baker**) is Ms. **Marah Benjamin**, who joined us in early May. Marah received her B.A. in Criminology/Criminal Justice from UMD in Spring 2014. Ms. **Nicole Hollywood** was promoted to Assistant Director of Student Services, as she now works with graduate students in addition to undergraduates. Finally, Ms. **Mary Lou Holt** has transitioned from part-time to full-time to help support the increased research activity in the department.