

RESEARCH & SCHOLARSHIP MATTERS

A PUBLICATION OF THE ASSOCIATE PROVOST FOR RESEARCH, DR. KIMBERLY BENDER

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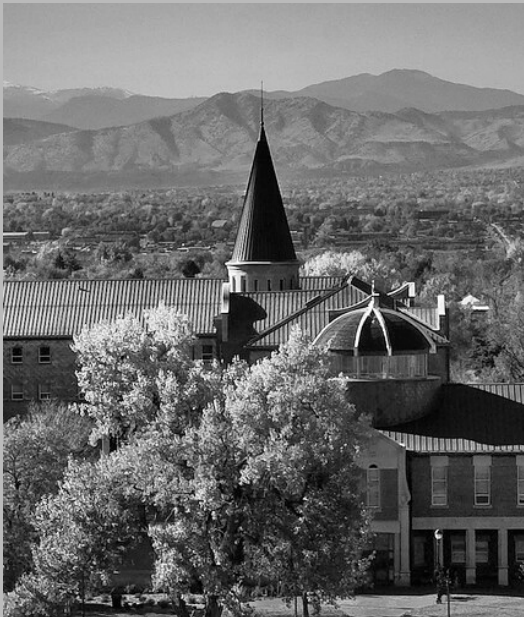
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HELPING THE PEOPLE WHO HELP FAMILIES

**AMY HE, SHAUNA RIENKS,
ROBIN LEAKE & CAROLE WILCOX**



Each and every day, child welfare caseworkers are working tirelessly to support and improve the well-being and safety of children and families. It's a tough job that entails long hours spent with families, seemingly endless paperwork, and ongoing effort to bring families together. Unfortunately, high job pressure, secondary traumatic stress, and burnout are common experiences among this segment of the workforce. This contributes to an annual rate of 20% to 40% in staff turnover and comes at a huge financial cost as well as disruption of family engagement whenever a worker leaves.

Through a five-year federal grant (2018-2023, \$4 million), Assistant Professor Amy He and her colleagues at the Butler Institute for Families are evaluating child welfare organizations' change efforts to improve their worker's health and well-being. Overall project goals entail evaluating the health of child welfare organizations, creating stipend plans with their university partners, and using evidence-informed strategies to build-up organizational capacity and workforce health.

This project has far-reaching impact, comprising of collaboration with the National Child Welfare Workforce Institute (NCWWI), multiple academic institutions, and seven public and Tribal child welfare programs from across the United States. Ultimately, the project seeks to strengthen organizational supports for child welfare caseworkers and improve their well-being, so that they in turn can better serve children and families involved in the child welfare system.

For more information, contact: Amy.He@du.edu

IN THE NEWS

During the months of November, December, and January, the University of Denver garnered 72 mentions in elite and national media outlets, and 113 mentions in local media outlets.

CNN International - "[Crisis with Iran](#)," TV interview with Nader Hashemi, director of the Center for Middle East Studies, JKSI

The Hill - "[Foreign policy issues, with enemies and allies, will follow Trump in 2020](#)," opinion from Christopher Hill, adviser to the Chancellor

The Denver Post - "[Police will resume enforcing Denver camping ban, city attorney says](#)," quotes from Nantiya Ruan professor of the practice, SCOL

Colorado Public Radio - "[Honoring MLK Day With The Spirituals Project Choir](#)," radio interview with Arthur Jones, interim vice chancellor for diversity & inclusion

Denver 7 - "[President Trump proposes new environmental rule to speed up infrastructure projects](#)," TV interview Jack Strauss finance professor and Miller Chair of Applied Economics, DCB

The New York Times - "[When Are You Really an Adult?](#)," quotes from Apryl Alexander, clinical professor, GSPP

The Hill - "[Harvey Weinstein's trial and understanding sexual assault](#)," quotes from Anne DePrince, professor, CAHSS

The Denver Post - "[What's a ClusterTruck? It's King Soopers' new hot-food delivery partner in Denver](#)," quotes from Ana Babic Rosario, assistant professor, DCB

Colorado Public Radio - "[Colorado's Red Flag Law Goes Into Effect Jan. 1. This Is What People Are Watching For](#)," radio interview with David Kopel, adjunct professor, SCOL

Denver 7 - "[Esports Revolution](#)," quotes from Scott Leutenegger, professor, RSECS

9 News - "[At one time, 60% of Denver's population came to the city because of tuberculosis](#)," TV interview with Jeanne Abrams, professor, University Libraries

The Denver Channel - "[When it comes to repairing Colorado roads, is there a better solution than the gas tax?](#)" TV interview with Andrew Goetz, professor, NSM

Education Week - "[Will Academia Give Rural Schools the Attention They Need?](#)" featuring work of Kristina Hesbol, assistant professor, MCE

Denverite.com - "[New research maps where housing and health crises collide in Colorado](#)," featuring DU research and quotes from Elysia Clemens, deputy director, CEAL

A MUSICIAN OF MANY COLORS

SAHAR NOURI

A conductor, a violinist, a pianist, a chorus master, a multi-lingual coach, and much more, Sahar Nouri recently added Director of Music for the University of Denver's Lamont Opera Theater to her resume.

In the fall quarter, Sahar conducted and directed Lamont's Opera Gala Event. At the same time, she served as chorus master, coach, conductor, harpsicord soloist, rehearsal pianist, and coach for Opera Colorado's *Barber of Seville*. Each production is a whirlwind of long hours, seemingly endless preparation, and dedication to the composition. But it's all worth it on opening night.

"At the opera, on opening night, there's this incredible excitement for all the things that you've been cooking are finally coming together," said Sahar. "We are making a palace of sound. It's a temporal experience that only happens that one night. It's like we're hosting the audience in this intangible but strong architecture built by sounds and expressions. Opera is such a conglomeration of art forms. In addition to the amazing music, there's the acting, sets, costumes, designs, lights and much more. Just like making any big building takes months and years, building this operatic experience takes a lot of time. And the thrill of revealing the final product on opening night is one of the best things I've ever experienced in my life."



Lamont Opera Theatre Music Director Sahar Nouri conducts a gala concert event by the Orchestra and singers performing opera works from the opera classics L'italiana in Algeri, Don Pasquale, Rusalka, and Lucia di Lammermoor to name only a few.

First a violinist, Sahar performed with the Tehran Philharmonic Orchestra and won several prizes in national music festivals and competitions in Iran. After moving to the United States, she focused on the piano. Throughout her impressive career, Sahar has been a member of the music staff at Houston Grand Opera, Dallas Opera, Utah Opera, Opera North Carolina, Glimmerglass Festival, Opera in the Heights, Aspen Opera Theater, and Opera Steamboat. She is also currently a member of the conducting staff at the San Francisco Conservatory of Music's opera program.

It wasn't long before the spirit of the mountains called Sahar. Opera Colorado was the voice. Sahar has served for four seasons as chorus master, assistant conductor, and principal coach for the organization.

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A ROSY VIEW AMONGST A SEA OF PESSIMISM

DISTINGUISHED PROFESSOR ILENE GRABEL SEES THE OPPORTUNITY IN GLOBAL CRISES

To the University of Denver community, Ilene Grabel is a professor and co-director of the M.A. program in Global Finance, Trade, and Economic Integration at the Josef Korbel School of International Studies. But her research, scholarship, and work as a policy consultant to international organizations and non-governmental organizations have had far-reaching effects, putting her not only in the national limelight, but the international spotlight.

Throughout her career, Ilene has been central to advances in the fields of international finance; developmental finance; and global, trans-regional, and regional financial policy and institutions. She is firmly established as a scholar at the leading edge of her field. She has consistently translated her work for the global policy community.

Her policy engagement is driven by the goals of improving macroeconomic and social conditions for the most vulnerable nations in the global community; enhancing their policy autonomy; and supporting their ability to make progress toward the United Nations Sustainable Development Goals. Throughout her career, Ilene has sought to identify and exploit opportunities to design policies and bolster institutions that promote positive economic change despite the numerous challenges and atmosphere of pessimism that pervades the global community.

Ilene's public engagement takes many forms. She is presently serving as a standing member of the



Intergovernmental Expert Group on Financing for Development at the United Nations Conference on Trade and Development (UNCTAD); and she has served as a research consultant on several occasions for UNCTAD's Division of Globalization and Development Strategies; UNCTAD's Group of 24; Human Development Report Office of the United Nations Development Programme (UNDP); International Poverty Centre for Inclusive Growth of the UNDP; United Nations University/World Institute for Development Economics Research; International Monetary Fund (IMF); Progressive Society, which is a project of the Group of the Progressive Alliance of the European Parliament; and the NGOs Action Aid, Third World Network, and the coalition "New Rules for Global Finance."

It is because of her deep knowledge and breadth of her work that she was named the Distinguished University Professor for the 2019-2020 academic year. It is an award based on scholarly productivity, national and international distinction in a field of research/scholarship, and work that makes a positive impact on society. It is the

highest honor the university bestows on its faculty members.

Her 2017 book, *When Things Don't Fall Apart* (MIT Press), focuses on the effects of the global financial crisis on the global financial governance architecture and developmental finance. Her chief finding is that the crisis catalyzed a range of discontinuities and incoherence in the financial arena that is of particular importance (and benefit) to emerging market and developing economies.

Ilene's book has earned awards from three leading international associations: the International Studies Association's "International Political Economy Best Annual Book Award" in 2019 -- a particularly prestigious award; the British International Studies Association's "International Political Economy Group Book Prize" in 2018; and most recently, the 2019 European Association for Evolutionary Political Economy Myrdal Prize.

Like most tales, the story isn't finished on the last page. Ilene is presently extending the arguments in her book to take account of the ruptures playing out in real time in the global financial environment, ranging from Brexit, debates over currency manipulation and currency wars, challenges confronting the IMF and the World Bank, and the evolving role of China in the global financial landscape.

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UPCOMING EVENTS

MARCH 6
HerDU

MARCH 21 - 29
SPRING BREAK

APRIL 13
FRF Deadline

APRIL 28
PROVOST LUNCHEON: UNIVERSITY
LECTURER MALCOLM LYNN BAKER

MAY 6
RESEARCH & SCHOLARSHIP
SYMPOSIUM

MAKING IT HAPPEN

ELAINE BELANSKY & BEN INGMAN



Health equity is a crucial part of student success. The Make it Happen project strives to take a whole-child approach by increasing healthy eating and physical activity among high-poverty, rural/frontier students and school staff.

Funded by the Colorado Health Foundation, Make It Happen, is a collaborative project between 27 high-poverty, rural/frontier Colorado school districts, and the University of Denver's Center for Rural School Health & Education (CRSHE). MIH will reach more than 12,000 students of which 64% are enrolled in Free/Reduced Lunch and 50% are Hispanic.

Districts identified health problems and evidence-based practices to address those issues within their respective area and MIH equips them with financial resources, technical assistance and professional development to put those practices into place. This quick implementation far outpaces the standard in medicine and health industry, which can take close to

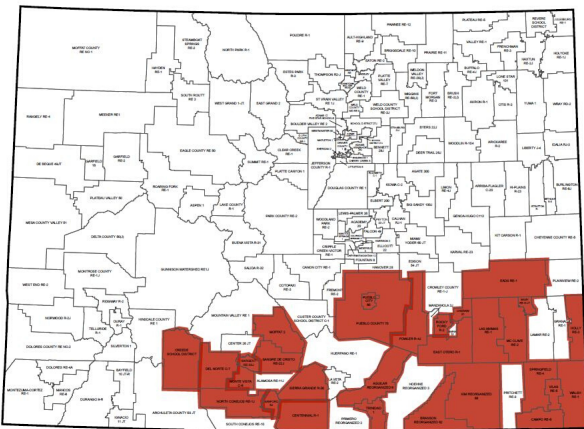
two decades for research to be put into practice.

The two main areas of focus for a large number of school districts was poor mental health and alcohol, tobacco, and other drug use. Because mental health is at the forefront of districts' and educators' minds, the Colorado Health Foundation has awarded CRSHE additional funding to launch the Resiliency Project. This effort is specifically designed to complement MIH by promoting youth mental health and resiliency.

As a part of this project, CRSHE will continue to provide hands-on support in rural Colorado through in person meetings with rural educators to discuss mental health promotion strategies, as well as sharing the latest best practices and school success stories at a regional convening of all 27 school districts next fall. CRSHE will capitalize on DU's state-of-the-art ECHO-DU technology, a virtual professional learning tool, in order to provide rural educators information about the latest best practices on topics such as social-emotional learning, suicide prevention, and bullying prevention.

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PARTNERING SCHOOL DISTRICTS



SELECT RECENT GRANTS AWARDED

Research Associate Professors Nancy Lucero & Robin Leake (Butler), \$3.77m

Grant from the Administration for Children and Families for "National Child Welfare Capacity Building Center for Tribes"

Professor Daniel Brisson (GSSW), \$51k

Grant from the City of Sheridan for "Tri-Cities Street Outreach Assessment"

Professors Doug Clements & Julie Sarama (MCE), \$301k

Grant from the mDRC-Manpower Demonstration Research Corporation for "Expanding Children's Early Learning Network (ExCEL)"

Associate Professor Mark Siemens (NSM), \$105k

Grant from the National Science Foundation (subaward University of Colorado/Boulder) for "Development of Fiber-Coupled Simulated Emission Depletion Microscopy (STED)"

Dean Shelly Smith-Acuna (GSPP), \$100k

Grant from OptumCare for "OptumCare GSPP Project"

Assistant Professor Rui Fan (RSECS), \$90k

Grant from Battelle National Labs (sub-award Department of Energy) for "Data-Driven Approaches Bridging Protection Gaps in Power System"

Assistant Professor Michelle Rozenman, Associate Professor Timothy Sweeny, & Professors Anne DePrince & Julie Dmitrieva (CAHSS), \$403k

Grant from the National Institutes of Health for "Threat Interpretation Bias as Cognitive Marker and Treatment Target in Pediatric Anxiety"

Professor Paul Rullkoetter (RSECS), \$89k

Grant for "In Vivo Evaluation of Femur-pelvic Positioning"

Assistant Professor Brette Garner (MCE), \$44k

Grant from the Colorado Department of Education (Subaward Generation Schools Network Inc.) for "San Luis Valley BOCES"

Assistant Professor Jonathan Moyer & Senior Research Associate David Bohl (JKSIS), \$42k

Grant for "Enhancing the International Futures (IFs) Platform for Improved Gender-Aware Forecasts and Projections"

Daniel Linseman (NSM), \$57k

Grant from NJZ Memory Care LLC, for "The ALLOTTED Study: ALUMIA Lifestyle Options To Treat Early Dementia"

A full list of recently awarded grants can be found:

- [November 2019](#)
- [December 2019](#)
- [January 2020](#)

GOING BEYOND THE MEMBRANE

MICHELLE KNOWLES

With two National Science Foundation awards, Michelle Knowles is focusing her research on not only neuro-transmission, but farther reaching impacts.

In 2015, Michelle received an NSF Career Award to study sensors that measure biological molecules, which are essential for medical diagnostics and drug discovery. These sensors often rely on the measurement of membrane proteins, which are targets for drug discovery. The main focus of this research is to design biosensors that can be used to identify how cells and biomolecules are affected by nanostructured materials.

Michelle's other NSF award focuses on the crucial aspect of the transmission of impulses from cell to cell. Chemical signals are packed into vesicles in a



"sending" cell that are expelled in the direction of a "receiving" cell. Many molecules must organize in space and time to trigger the fusion of a vesicle with the receiving cell membrane. In doing so, cells are capable of releasing hormones and neuro-transmitters on demand. This study examines two of these critical fusion-inducing molecules and their relation to one another.

Through both of these projects, Michelle has stepped outside the lab and into the classroom of a younger group of students. To fulfill the NSF's goal of facilitating

research that goes beyond the lab, Michelle integrated science into education through outreach events for students in Denver Public Schools and in the education of non-science majors at the University of Denver. Her goal is to keep the outreach activities fun and make every one think that they can do science in some way. Focusing on how

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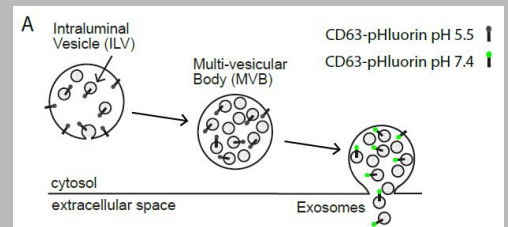


Figure: Membrane fusion is observable in live cells on a microscope. A) Cells are fluorescently labeled with a pH sensitive fluorescent protein, pHluorin, that is quenched when in an acidic vesicle. Once the vesicle docks to the plasma membrane and fuses, the pH increases and pHluorin emits green fluorescence.

FINDING THE PERFECT MIX

YUN-BO YI

Just as the perfect balance of ingredients can make a great dish, the perfect mix of elements can vastly improve the performance of friction materials used in vehicles, aircraft, and railways.

These friction materials must be designed to withstand wear and heat. Traditionally, metals like copper, aluminum, and steel have been used to reduce heat because their superb capacity for heat dissipation, however, there are concerns that remnants of these metals can cause environmental contamination. Laws and regulations require the phase out of these heavy metal materials.

But other materials can present different problems. Graphite, carbon, and ceramic are considered a potential replacement for metals in friction



materials, but they may cause issues such as thermal-mechanical instabilities (TMI). The repercussions of TMI can be dangerous. It can cause fatigue and cracking, which can look like hot spots in car rotors or brake failure. Reducing the chance of fracture and fatigue ensures the reliability of materials.

Currently, the industry uses a trial and error method, where materials are assembled and tested. Through a grant from the National Science Foundation, Yun-Bo and

his team will take a computational approach, using a framework to predict the best material composition. These micro-scale models can predict material properties, such as stiffness or the friction coefficient, as well as how much of each material is needed. Some materials are complicated, so a computational model is an efficient and economical approach compared to the traditional trial and error.

Once models are developed, business and industry partners will validate them through experimental characterization and measurement. Eventually, this modeling could be a part of a software package and virtual lab for technology transfer and educational purposes, as well as have far-reaching industrial and environmental impacts.

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A MUSICIAN OF MANY COLORS

CONTINUED FROM PAGE 2

She has been able to bring together DU and Opera Colorado in ways that benefit both. This collaboration has provided Lamont students the opportunity to work with and learn from international guests who are at the highest level of the industry through master classes. Sahar looks forward to more collaborations in the future.

In February, Sahar teamed up with DU faculty member and tenor Matthew Plenk for a recital as a part of the Stanley Live Concert Series in Estes Park. She will also take part in Pagliacci at Opera Colorado, Feb. 27 – March 1 as well as The Magic Flute at DU's Lamont Opera Theater, April 23-26.

For more information, contact: Sahar.Nouriedu.edu

GOING BEYOND THE MEMBRANE

CONTINUED FROM PAGE 5

her research can be impactful locally, she also conducted outreach to high school students in a summer engineering camp and hosted high school students in her lab to work on a research project. DU undergraduate and graduate students also had the opportunity to be trained in the field of biophysical chemistry where they master cutting-edge technology for observing the behavior of cells. New, novel courses at the interface of biochemistry and engineering have also been designed and implemented at DU.

With her CAREER award and other NSF award wrapping up in 2020 and 2021 respectively, Michelle is thinking about what's next. She plans to dive into studying how tiny vesicles are secreted from cells – something still a mystery to the science world.

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ABOUT THE PUBLICATION

Research and Scholarship Matters is a quarterly newsletter produced on behalf of the faculty of the University by the Interim Associate Provost for Research. Faculty with notable accomplishments or images suitable to the front panel of the next issue are encouraged to send them to Audry.LaCrone@du.edu. Not all submissions can be included, but every attempt will be made to be inclusive of all high quality research, scholarship and creative works.

Previous issues can be found [here](#).

WANT MORE INFORMATION?

Want to receive emails regarding resources, celebrations, opportunities, and upcoming deadlines related to research and scholarship?

Join the DU-Research [listserv](#).