Environment, Safety and Health (ESH)
Research Program Annual Review

Because the future can't wait, we bring the best minds together to achieve the unimaginable

https://www.src.org/calendar/e007659/

https://www.src.org/program/grc/esh/

9th November 2022

Kashyap Yellai, Science Director

Tameka Bell & LaDonya Dooley, Research Program Coordinators

SRC Select Disclosure

On Behalf of the SRC,

Thank You!

- To all the industry members for their sponsorship and mentorship

- To all the Principal Investigators & their Students for their continued research efforts

- To **Tameka Bell (SRC) & LaDonya Dooley (SRC)** for support with arranging the event!!

- To all of you for participating in this virtual ESH annual reviews!

Review Reminders

Everyone will be participating virtually

Mute your microphones and use the chat box for discussions.

Timing: 30 min (25 min talk + 5 min Q/A)

Presentations are pre-recorded and Q&A will be live.

Industry people: Evaluation form (electronic) to be collected

Submit Compelling Research Reasons (CRR) as appropriate.

SRC

Reminder: Invoicing and Deliverables

Regular invoicing

Invoice on regular basis: monthly is preferred

Excess money (calendar year) is considered profit and taxable!

Spending must occur within contract period

Invoicing expected to be at or above 95% invoiced at end of each contract period

Final invoice within 60 days after project ends

Submit deliverables on time: even 1 day is too late!

System will flag delinquencies

Late deliverables will stop invoices being paid and can jeopardize future funding

Contact SRC if there are issues with getting deliverables on time

Pre-publication drafts must be deposited at SRC > 60 days before published

Best practice: deposit draft to SRC website when submitting to journal/conference (also thesis)

Update the draft on the SRC website with final paper after acceptance (select submit a new version)

Acknowledgement of SRC funding must be added to all publications

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Resources that Help Academics Evaluate, Adopt, and Amplify Emerging Member Solutions

Member Resources

- SRC has collected information members provide for the academic community, including education, design, and prototyping
- SRC researchers and students are encouraged to take advantage of these resources in their research and education activities

- Link to the resources:
  https://www.src.org/program/grc/guide/researcher/guidelines/

Member Resources

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Intel
- Intel Open Data Center Diagnostic Project
- Intel Academic Compute Resource Environment (ACE)
- Intel Academic Program for oneAPI

Analog Devices
- Active Learning Program
- ADALM-SR1 Hardware
- ADALM-SR1 Switching Regulator Active Learning Module

ARM

ARM Academic Access
ARM Education
- ARM University Program Education Kits
- ARM Education Online Courses
- ARM Education Textbooks and Reference Books

Texas Instruments
Specific tutorial and curriculum for universities include:
- Texas Instruments University Program
- TI Robotics System Learning Kit
- TI Power Management Lab Kit
- TI Experimental Power Electronics Reference and Curriculum
- TI Precision Labs

IBM
- IBM tutorial and curriculum for universities
- IBM Skills Academy
- IBM + Coursera
- IBM PhD Fellowship Program
- IBM Quantum Computing - student opportunities
- IBM AI Hardware

NXP
- Rapid IoT Prototyping Kit

Siemens
- EDA Academic Products

Qualcomm
- University Relations Program

New "Failure to Success" Workshops

https://www.src.org/calendar/failure-to-success/

- New workshop series to highlight challenges faced by our researchers and how they overcame them or set a new direction
  - Not all research will be successful, but we should continuously learn
  - <u>Open to all SRC</u>: industry, other academia, and SRC Research Scholars

- Most recent Failure to Success (5/18): "Lemons are for Lemonade?" by Professor Subu Iyer, UCLA (https://www.src.org/calendar/e007658/), over 160 people attended.

  I like very much the concept you have laid out, and I think I have a very nice example to share with the SRC community.

  • • •

- More workshops are coming. Please stay tunned!

SRC
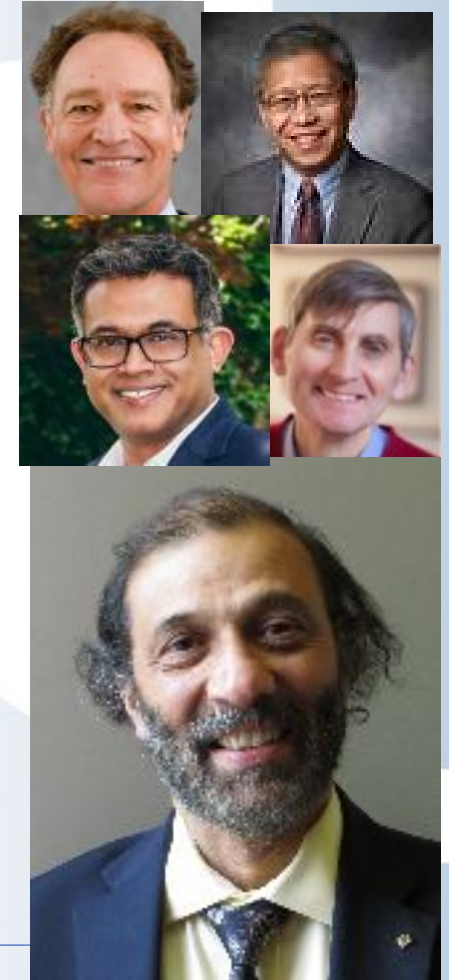
Reminder: Send News Items to SRC
https://www.src.org/newsroom/newsletter/

- Send noteworthy events and announcements that you and your team are involved in to SRC

- Send this information on a monthly basis. We use what we can in our SRC newsletter and monthly emails to the Advisory Board and liaisons
  - Best Paper Awards (who, award, title of piece, where, when and photos of students/faculty)
  - Papers, posters presentations, and/or conference talks
  - Professional Recognition Awards: IEEE, teaching awards, etc.
  - Professional activities such as workshops, tutorials, and invited talks

- All submissions must have a web link (URL) to the award, paper, etc.
  - If you have your own website that contains information pertaining to your research, share the link with SRC as well

More Than 17,000 subscribers!!

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New SRC Student Platform on LinkedIn (Beta)

https://www.src.org/student-center/handbook/linkedin/

Join the Beta Now!

- SRC Student Programs is rebranding to **"SRC Research Scholars" Program**

- What is the **SRC Research Scholars Program**?
  - SRC provides <u>undergrads, graduate students, and postdoctoral researchers</u> with a unique education consisting of traditional course work, cutting-edge research, and direct interaction with the semiconductor industry
  - These Research Scholars work on industry-relevant research with SRC-funded faculty who are recognized experts in their fields
  - Through our extensive community of academics and industry personnel, we nurture the evaluation of the talent pipeline for our industry and beyond
  - Our alumni have become industry leaders and renowned faculty researchers, creating a virtuous cycle where mojo begets mojo

SRC encourages all undergrads, graduate students, and postdoctoral researchers to join this Beta program!!!

Get LinkedIn with SRC

SRC uses a special LinkedIn Affiliate page for the SRC Research Scholars Program. Undergrad, graduate students, and postdoctoral researchers participating on SRC research add their SRC Research Scholars experience to their LinkedIn profile. This allows Scholars a way to professionally showcase their talent and experience. It also simplifies how recruiters, engineers, and even other Scholars can find SRC Research Scholars, using either the LinkedIn Search* or LinkedIn Recruiter*.

SRC Research Scholars Program*

By being part of our community, Research Scholars will have a unique opportunity to get to know professionals with careers in the semiconductor industry or government, top researchers in their fields, and other students with similar interests.

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Reminder: Student Hiring/Internship information back to SRC

- Relevantly trained students are one of the most valuable outcomes of the funded research
  - Hiring information is an important data point to highlight the value of SRC funded research to our member companies

- Include any SRC students (whether directly funded or participated in some way on the research) that graduated, were hired, or had an internship
  - **If you have a student that is working on the project but funded through other sources have them create a student account with SRC;** this allows SRC to promote them to our industry members
  - And let SRC know how they are being funded; as leveraged funding is a benefit for the members.

- Many students graduate and start the next chapter of their life but leave without updating their student record on the SRC website
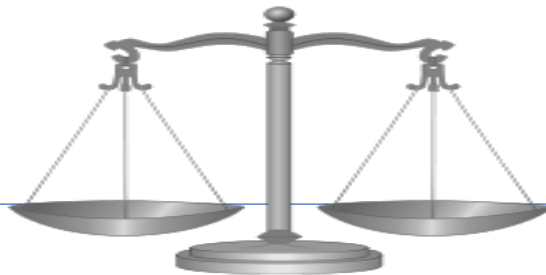 - As your students do internships or accept hiring offers, **PIs are expected to have their students update their accounts at SRC**

Intellectual Property Statement

https://www.src.org/about/contracts-ip/#ip

- The information provided by researchers during this annual review
  - Is the property of the university and of the researchers presenting this information
  - May include research results sponsored by and provided to the funding members
  - May include intellectual property rights belonging to the university and SRC, to which sponsors may have license rights

- By attending or viewing this review, you are agreeing
  - Not to use this information for purposes unrelated to the review unless and until approved by SRC
  - To keep this information in confidence until the university and SRC have evaluated and secured any applicable intellectual property rights

- After any intellectual property rights have been secured, the SRC encourages the University and researchers to publish and freely disseminate this information and results of the sponsored research program.
  - Worldwide patent rights are waived if publication or public dissemination occurs prior to filing a corresponding U.S. provisional or utility patent application

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General Data Protection Regulation
https://www.src.org/app/account/guide/privacy-policy/

- Applies to SRC
- Personal data regulations
- Involves privacy notices, consent, and security
- SRC Privacy Policy

GDPR

The General Data Protection Regulation

SRC

Agenda for Annual Review, 9th November
https://www.src.org/calendar/e007659/ (Virtual Event via Webex)

Wednesday, November 9

Time	Speaker & Title	Room
8:30 - 8:45 am	Introduction	Kashyap Yellai / SRC
8:45 - 9:15 am	**2989.001**: Identifying Sources of Per- and Polyfluoroalkyl Substances (PFASs) in Photolithography Wastewater	Damian Helbling, Christopher K. Ober & Paige Jacob / Cornell
9:15 - 9:45 am	**3037.001**: Development of a Treatment Train for Removal and Destruction of Per- and polyfluoroalkyl Substances (PFASs) and Co-contaminants from Semiconductor Fabrication Wastewater	Timothy Strathmann & Christopher Bellona / Colorado School of Mines
9:45 - 10:15 am	**3100.001**: Environmentally Benign Chemical Mechanical Planarization Slurries Aided by Amino Acids	Jihoon Seo & Elizabeth Podlaha-Murphy / Clarkson Univ.
10:15 - 10:25 am	Break	
10:25 - 10:55 am	**3101.001**: Plasma-based Treatment of Per- and Polyfluoroalkyl Substances (PFAS)	Selma Mededovic, Thomas Holsen & Faith Isowamwen / Clarkson Univ.
10:55 - 11:55 am	**3099.001**: Addressing Emission Challenges though Exhaust Monitoring and Control	Jane Chang / UCLA
	3096.001: Evaluating Alternative and Environmentally Friendly Etchants and Processes	
11:55 - 12:05 pm	Break	
12:05 - 1:05 pm	Lunch / Poster Session	
1:05 - 1:15 pm	Break	
1:15 - 1:45 pm	Industry Talk	Tim Yeakley / TI
1:45 - 2:00 pm	Break	
2:00 - 2:30 pm	**3097.001**: Reaction Kinetics for the Incineration of Fluorinated Organic Chemicals	Gandhali Kogekar / Brown Univ.
2:30 - 3:00 pm	**3038.001**: Computational Hazard Screening and Essentiality of PFAS and Non-PFAS Alternatives in Photolithography	Carla Ng / Univ. of Pittsburgh
	3038.002: In Vivo Evaluation of Selected PFAS and Non-PFAS Alternatives using a Zebrafish Model	
3:00 - 3:30 pm	**3098.001**: Treatment of Short Chain PFAS in Liquid Waste Stream	Takahiro Yamada / Univ. of Dayton
3:30 - 4:00 pm	**3041.001**: Photocatalytic Abatement of N2O and NOx in Semiconductor Exhaust Streams	Pierre Herckes & Paul Westerhoff / Arizona State
4:00 - 4:15 pm	Break	
4:15 - 5:15 pm	TAB Caucus	
5:15 pm	End of Day	

SRC

Thank You!

Kashyap Yellai

Kashyap.Yellai@src.org

July 21, 2022