



Semiconductor
Research
Corporation

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

LMD Research Program e-Kickoff

April 11, 2023, virtual

Kashyap Yellai, Science Director

Tameka Bell & Dilcia Paguada, Research Program
Coordinators

<https://www.src.org/calendar/e007737/>

Thank you!

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 the great research effort
- To Tameka Bell & Dilcia Paguada at SRC for the support
- To all of you for being here for the e-kickoff!



e-kickoff Reminders



Everyone will be participating virtually

Presenters should remember to speak clearly and keep within the allotted time.



Timing: 15 min
(10 min talk + 5 min Q/A)

Presentations and Q&A will be live. Please be mindful, so watch the time!!!

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

All submissions will be done in Pillar Science



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

At minimum, the acknowledgement should read: "This work was supported in part by Semiconductor Research Corporation (SRC)."

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

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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

A Siemens Business

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Management Charts
Corporate Annual Reports

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SRC VALUE
Awards Programs
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Recruiter Guide
SRC Timeline

ACADEMIA
Researcher Resources
Funding Opportunities
Career Opportunities
Participating Universities
Education Alliance



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<https://www.src.org/program/grc/guide/researcher/guidelines/>

Reminder: Send News Items to SRC

- 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!!



SRC Student Platform on LinkedIn

- What is the **SRC Research Scholars Program**?
 - SRC provides undergrads, graduate students, and postdoctoral researchers 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 program!!!

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

Join
Now!

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.



Pillar Science Common Issues & Links for Academics

- There are lots of help articles in Pillar Science which can help answer these questions.



- Here's an article about logging into Pillar Science
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/11198322803099-How-To-Login-to-Pillar-with-SRC-org-Credentials>
- Here's an article about update your profile in Pillar Science
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/10330492961563-How-to-Edit-Your-Profile>
- Here's an article about adding students, administrators, or other academics to your project
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/10330872380187-How-to-add-Students-Admins-or-other-Academics-to-Your-Project>
- Here's an article about submitting projects results and deliverables
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/11213311626139-How-to-Submit-Project-Results-previously-known-as-publications->
- SRC hosted a live demonstration for academics on January 31, 2023, and the recording is available
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/12543067480091-Pillar-Science-Demonstration-for-Academics-Video-Recording->



Guidance for Depositing Supporting Code and Data with Pre-Publications

As part of our move to Pillar Science, there is the ability to collect not just the pre-publications PDF's but also arbitrary file formats (.mp4, .ppt, etc.) as well. This new capability enables a new way for SRC programs to facilitate technology transfer to our sponsors.

Going forward, we will be requiring that all code and supporting data below a certain size threshold to reproduce a pre-publication also be uploaded to Pillar Science.

•SRC's reasons for doing this are:

1. **To more fully document the research output of our programs to demonstrate to our sponsors the breadth and depth of the funded work**
2. The full value of code and data is not often found with its original author but when used across a wider scientific community like our sponsors
3. By having better data and code visibility in our programs, our sponsors will have a better understanding how to connect with researchers

Historically, there has been concern amongst researchers that the code and the data are not "camera ready" for distribution at the pre-publication state. **While these concerns are valid, perfect is the enemy of accomplishment.**

- SRC seeks to obtain a snapshot of your code at the state it was in when you submitted your publication to the SRC repository.
- If your code and data are not in a state that you would want to post on an open code repository like GitHub, that is acceptable. Our sponsors employ trained professionals who have the experience to handle and interpret idiosyncratic legacy code and documentation.
- SRC would also like the data collected and used to generate publications to be submitted to Pillar Science as well.
- Preferably in a single compressed file in an open format marked with the publication's name followed by data so that it read like this, "[Publication Name]_data.ZIP".**

The submission of data to SRC is a direct ask, although it is a right granted by terms of the sponsored research agreement.

- Contained within that compressed file should be the data used to generate figures, any code developed for that publication as well as any experimental data acquired if the file size is below 10 Mb.**
- If the data file is in a proprietary file format as often happens with analytical instruments, please convert it to an open format before uploading
- If you are not able to convert from proprietary file format to an open file format, please include it in the compressed data file anyway.
- If the data was acquired from an open depository like the UCI Machine Learning Repository, a notification of that along with a dated weblink in a .txt file should be included.



Pillar Science Common Issues & Links for Industry

- There are lots of help articles in Pillar Science which can help answer these questions.



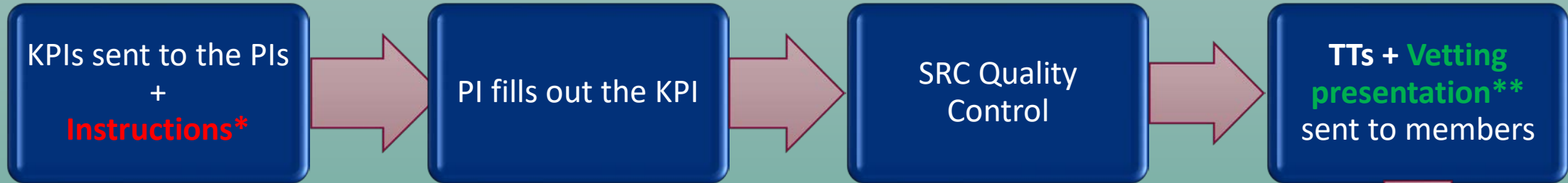
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 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/10330492961563-How-to-Edit-Your-Profile>
- Here's an article about adding yourself as a liaison
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/10092535189403-How-To-Add-Yourself-As-A-Liaison>
- Here's an article about how to find research projects of interest
 - <https://semiconductorresearchcorporation.zendesk.com/hc/en-us/articles/9194403647131-Using-Projects-Page>
- There was 2 industry demonstrations for industry on February 14 and 21
 - The recordings can be found on the SRC.org website at : <https://www.src.org/pillar/>



Key Performance Indicators (KPI) Process Flow

SRC will be moving the KPI process to Pillar Science later in Q1'23

SRC will upload a XLS to edit within Pillar Science, PI will update throughout the year



- KPI instruction video is available:
<https://www.src.org/src/guide/kpi/>

KPIs/TTs are part of annual review process

*TT = “meaningful” Technology Transfers



Because of well-defined KPI process flow, SRC members can maximize their research experiences with meaningful Technology Transfers.



<https://www.src.org/src/guide/kpi/>

Intellectual Property Statement



- 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

General Data Protection Regulation

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



E-Kickoff Agenda

- 9 projects
- 10-minute presentations with 5-minute Q&A (live)
- Will be recorded to shared/reviewed after the event

Virtual Event
All Times in ET



<https://www.src.org/calendar/e007775/>

Time	Title	Speaker
6:00 - 6:05 pm	Introduction	Kashyap Yellai / SRC
6:05 - 6:20 pm	3138.001: High Speed and High Density MRAM with PMA for Energy-Efficient On-Device Machine Learning at Edge	Shan X. Wang / Stanford University
6:20 - 6:35 pm	3140.001: CMOS-Compatible Vertical Ferroelectric Programmable Resistors for 3D Stacked Analog Accelerator Arrays	Jesus A. del Alamo / Massachusetts Institute of Technology
6:35 - 6:50 pm	3141.001: Zero Schottky Barrier Ohmic Contact to Semiconductor using Metal-Interlayer-Semiconductor Heterostructure	Suman Datta / Georgia Institute of Technology
6:50 - 7:00 pm	Break	
7:00 - 7:15 pm	3139.001: Overcoming Ferroelectric HfO2 Wake-Up, Fatigue, and Imprint via Oxygen Vacancy Control	Jon F. Ihlefeld / University of Virginia, Charlottesville
7:15 - 7:30 pm	3143.001: Amorphous GaN BEOL Transistors with Stable Vth	Christopher Hinkle / University of Notre Dame
7:30 - 7:45 pm	3145.001: 3D Monolithically-Integrated 2D WSe2 Gate-All-Around Complementary-FET	Aaron Thean / National University of Singapore
7:45 - 7:55 pm	Break	
7:55 - 8:10 pm	3146.001: Conversion of H2O to a Low Voltage Ferroelectric and High k Dielectric	Kyeongjae Cho / University of Texas at Dallas
8:10 - 8:25 pm	3144.001: Smarter Nanoelectronics with Atomically Precise Graphene Nanoribbons	Zafer Mutlu / University of Arizona
8:25 - 8:40 pm	3142.001: Enabling Design Space Exploration of Monolithic-3D Logic and Memory Fabrics	Xiaobo Sharon Hu / University of Notre Dame

Thank You!



Opens?



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