

## NEWS OF THE WEEK

APRIL 10, 2023

### CBE IN THE NEWS

- [Yeast in space](#)
- [Congratulations to Professor Norm Wagner and his co-authors, Julie Hipp and Jeffrey Richards, on the selection of their paper, 'Direct measurements of the microstructural origin of shear-thinning in carbon black suspensions' for the 2023 Journal of Rheology Best Paper Award!](#)

### DEPARTMENT'S SEMINAR/EVENTS:

- **CBE Seminar Series**
  - **Kyoung-Shin Choi, University of Wisconsin-Madison**  
Friday, April 14, 2023  
10:00 AM in 102 CLB  
and via Zoom: <https://udel.zoom.us/j/99615073260>  
“[Electrochemical Hydrogenation, Hydrogenolysis, and Dehydrogenation for Reductive and Oxidative Biomass Upgrading](#)”
  - **Helen Durand, Wayne State University**  
Friday, April 21, 2023  
10:00 AM in 102 CLB  
and via Zoom: <https://udel.zoom.us/j/99615073260>  
“[Cybersecurity and Quantum Computation in Control of Cyberphysical Systems for Next-Generation Manufacturing](#)”
  - **Sujit Datta, Princeton University**  
Friday, April 28, 2023  
10:00 AM in 102 CLB  
and via Zoom: <https://udel.zoom.us/j/99615073260>  
“[Life in A Tight Spot: How Bacteria Navigate Crowded Spaces](#)”

### OTHER DEPARTMENT'S SEMINAR/EVENTS

- **Philosophy- Norton Lecture**  
**Dr. Keith Whittington, Princeton University**  
“Can State Legislatures Ban Critical Race Theory”  
Friday, April 14th at 3:30pm in 103 Gore Hall
- **Physical Chemistry Seminar**
  - **Dr. Robert Dick, Cornell University**  
Friday, April 14th at 4:00pm in 219 Brown Lab  
"Using cryo-ET to understand quaternary viral protein arrangements and co-factor binding"  
Please see attachment for more information
  - **Dr. Ambika Bhagi-Damodaran, University of Minnesota**  
Monday, April 17th at 4:00pm in 219 Brown Lab  
"Engineering Iron Enzymes to Reprogram Biological Signaling and Chemical Catalysis"  
Please see attachment for more information
- **Inorganic Chemistry Seminar**  
**Dr. Gael Ung, University of Connecticut**  
Wednesday, April 19th at 4:00pm in 219 Brown Lab  
"Seeking chiral light: Design and synthesis of molecules emitting circularly polarized luminescence"  
Please see attachment for more information
- **Applied Chemistry Seminar Series**  
**Dr. Richard R. Schrock,**  
Tuesday, April 25th at 3:00pm in the AUDION at STAR Tower  
“Mo and W-Based Olefin Metathesis Catalysts are formed from Metallacyclopentanes”

### 3M RISE SYMPOSIUM

- **4th Annual RISE Symposium**  
We would like to announce that the 4th annual [3M RISE Symposium](#) (Raising Influence in Science and Engineering) is now accepting applications! The purpose of the symposium is to introduce emerging underrepresented doctoral students in science and engineering to the wide range of rewarding careers in research and development at 3M. This is a virtual event that will be hosted from July 17th–19th 2023 and is a great way for future STEM leaders to get introduced to the corporate world.

Ideal applicants are expected to complete their graduate degree appointment within 12 months of the RISE event. We will accept applicants from any STEM field. Attached is a flyer describing the symposium. The RISE Symposium application deadline is May 1st 2023.

We are also conducting application reviews for a limited number of candidates prior to the 3M Rise application deadline. If interested, please fill out the Application Review form by March 27th.

RISE Event – <https://3m.recsolu.com/app/collect/form/P0xBa6u7J6rttRAITRg9hg>

RISE Application Review – <https://3m.recsolu.com/app/collect/form/Mzcw67Xtb1eoholCgjl1vw>

### DOW EVENTS

- [Dow's Annual BEST Symposium](#)  
We are now accepting applications for the 17th annual Dow Building Engineering and Science Talent (BEST) Symposium. This year's BEST symposium will be held in person in Midland, MI on July 24th – 27th, 2023. The symposium is primarily intended to introduce Black, Latinx, and Native American U.S. doctoral and postdoctoral scientists to the wide range of rewarding careers in industrial research, and in particular, the many opportunities with one of the world's largest and leading materials science companies, Dow. This conference, developed jointly by our minority scientists and Ph.D. recruiting team, demonstrates our commitment to a diverse work force.

Additional information may be found at our [website](#). All applications are due by **April 30th, 2023**.

Participants in the conference may be considered for future employment at Dow. However, participation neither obligates the student to apply for employment, nor guarantees future consideration for employment by Dow. For those wishing to learn more about opportunities, please visit our [careers page](#).

### JOBS/RECRUITING

- **Pharma Solutions**  
**Position:** [Senior Scientist](#)  
**Req. ID:** 486676  
We have an exciting opportunity for a Scientist in the Colloids and Biopharma R&D group, part of IFF Pharma Solutions R&D, in Wilmington, Delaware. The R&D Scientist will lead the preparation and execution of experimental activities to support the Pharma Solutions R&D growth strategy, including developing materials and technologies for emerging applications in biopharma such as cell and gene therapy and tissue engineering. A successful applicant will have laboratory experience associated with the experimental methods, analytical techniques, and instrumentation troubleshooting. Additionally, the candidate must demonstrate good interpersonal and organizational skills with a strong commitment to safety.
- **BioCurie**
  - **Position: Internship in Graphic User Interface (GUI) Development**  
BioCurie's mission is to harness AI to transform the development and manufacturing of lifesaving cell and gene therapies. We are looking for a talented and knowledgeable GUI developer to help us translate our validated software into a commercial software product for the biopharmaceutical industry. We welcome intellectually curious, passionate people who share our vision of using innovation to help deliver next-generation therapies to patients. **See attached for more information.**
  - **Position: Internship in Computer Programming & Software Development**  
BioCurie's mission is to harness AI to transform the development and manufacturing of lifesaving cell and gene therapies. We are looking for a talented and knowledgeable programmer to help developer to help us translate our validated software into a commercial software product for the biopharmaceutical industry. We welcome intellectually curious, passionate people who share our vision of using innovation to help deliver next-generation therapies to patients. **See attached for more information.**

Available positions can be found on the Chemical & Biomolecular Engineering [opportunity website](#), so be sure to check it regularly.



## INORGANIC CHEMISTRY SEMINAR

### *SEEKING CHIRAL LIGHT: DESIGN AND SYNTHESIS OF MOLECULES EMITTING CIRCULARLY POLARIZED LUMINESCENCE*



**GAËL UNG PhD**

**UNIVERSITY OF CONNECTICUT**

**WEDNESDAY**

**April 19, 2023 @4:00**

**219 BRL**

Circularly polarized luminescence (CPL) is the emission of light with preferential right- or left-polarization states. CPL has emerged as a next-generation light source since the added chiral optical information presents unique opportunities to enhance optical displays, bio-imaging, security features for sensitive documents, and quantum information science. Synthetic designs and strategies towards producing molecules capable of emitting strong CPL will be discussed. Bright CPL-emitting lanthanide-based complexes will be presented, as well as some rare examples of base-metal and actinide-based CPL-emitting molecules. We will also show that CPL can be extended in the near-infrared, especially in the critical telecom C-band.

Gaël was born and raised in France. He received an Engineering degree from Chimie ParisTech and a Master's degree from the Université Pierre et Marie Curie (now Sorbonne Université), Paris, France. Gaël moved to the US in 2009 and received his Ph.D. in 2013 with Prof. Guy Bertrand starting at UC Riverside then moving to UC San Diego, working on mesoionic carbenes. He then moved to Caltech for a postdoc with Prof. Jonas Peters working on low-valent iron complexes and nitrogen fixation. Gaël started his independent career at UConn in 2016 working on the coordination chemistry of lanthanides and transition metals for circularly polarized luminescence. He received an NSF CAREER award in 2021.



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## BIOCHEMISTRY SEMINAR

### *ENGINEERING IRON ENZYMES TO REPROGRAM BIOLOGY SIGNALING AND CHEMICAL CATALYSIS*



**Ambika Bhagi-Damodaran PhD**

**University of Minnesota**

**MONDAY**

**April 17, 2023 @4:00**

**219 BRL**

From respiration to nitrogen fixation, iron containing enzymes drive key biological processes in all forms of life. Bhagi-Damodaran lab seeks to uncover the structural and mechanistic basis of iron enzyme function, and design small-molecule and computational protein design approaches to engineer their biological activity. Such enzyme engineering studies, while fundamentally relevant to the fields of biological and inorganic chemistry, are poised to have significant implications on biological redox signaling and chemical catalysis. In this talk, Prof. Bhagi-Damodaran will discuss her lab's research towards (A) reprogramming non-heme iron enzyme driven oxygen signaling as a mechanism to target chemo-resistance in cancer cells, and (B) developing non-heme iron enzyme based bio-catalysts that enable direct and modular C-H functionalization reactions. The research talk will be of broad interests to Biological, Inorganic, Computational, and Inorganic Chemists.

Ambika Bhagi-Damodaran is an Assistant Professor of Chemistry at the University of Minnesota, Twin Cities. Ambika completed her Ph.D. at the University of Illinois, Urbana-Champaign in 2016 focusing on structure-function relations of metalloenzymes involved in respiration and denitrification processes. Ambika's postdoctoral work at University of California, San Francisco focused on understanding structural basis of protein-protein interactions in an enzymatic cancer drug target.

In 2018, Ambika started her independent career at the University of Minnesota. She leads the Bhagi-Damodaran lab which aims to change the landscape of metalloenzymes towards sustainable catalysis and new therapeutics. Throughout her career, Ambika has received numerous awards. Most notable amongst them are the Young Investigator Award from American Chemical Society, NIH Ruth L. Kirschstein postdoctoral fellowship, Faculty for the future award from Schlumberger foundation, NIH MIRA award, NSF CAREER Award, 3M NTF Award, Cottrell Scholar Award, and McKnight Land-Grant Professorship.

Ambika grew up in India, and is the first from her family to complete a four year undergraduate program. She came to the US to pursue Ph.D. in Chemistry, and was so fascinated by the wonders of biology and chemistry that she decided to stay in the US and pursue research at the forefront of biological chemistry. If not a chemistry faculty, Ambika would have pursued a career in dance and theater. She was part of a Bollywood dance team during her graduate school. In her "free" time, Ambika likes watching sitcoms and cooking. Ambika is mom of a five year old, and her best science and education ideas come while spending time with her daughter and partner.



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## Internship in Graphic User Interface (GUI) Development

**Employment Type:** Paid internship

**Location:** Wilmington, Delaware

**Work Site:** Hybrid, with regular video calls and weekly in-person meetings

**Time:** Full-time over summer, with opportunity to work part-time before and after summer

### About the Role

BioCurie's mission is to harness AI to transform the development and manufacturing of lifesaving cell and gene therapies. We are looking for a talented and knowledgeable GUI developer to help us translate our validated software into a commercial software product for the biopharmaceutical industry. We welcome intellectually curious, passionate people who share our vision of using innovation to help deliver next-generation therapies to patients. As an intern in an early-stage startup company, you will have the opportunity to work closely with senior leadership and make a valuable contribution to our first software product for gene therapy production.

The ideal candidate should have an eye for clean and artful design, possess superior UI skills, and be able to translate high-level requirements into interaction flows and artifacts, and transform them into beautiful, intuitive, and functional user interfaces

### You will get to...

- Work on developing first-in-class software product for gene therapy production
- Attend weekly meetings and participate in networking events
- Work closely with the CEO and Chief Scientist
- Gain experience in the biotech industry
- Contribute to the development of a software product that could help transform gene therapy manufacturing to help delivery lifesaving therapies to patients

### Responsibilities

- Work closely with the BioCurie team to
  1. Convert a validated algorithm into a software product with useful functionality.
  2. Deliver a high-quality minimal validated product (MVP) that is ready for launch.
  3. Deploy the MVP for beta testing.
- Create and design a GUI for a software product with drag-and-drop functionality
- Execute all visual design stages from concept to final hand-off
- Iterate designs and solutions efficiently and effectively
- Collaborate and receive feedback from the company staff to make changes
- Complete projects according to deadline
- Establish and promote design guidelines, best practices, and standards

- Present and defend designs and key milestone deliverables to stakeholders
- Conceptualize original ideas that bring simplicity and user friendliness to complex design roadblocks

## **Requirements**

- Currently enrolled in a Bachelor's, Master's, or PhD degree program
- Skilled in Python
- Strong creative and analytical skills, with eye for detail
- Basic knowledge of layouts, typography, plotting scientific data, line composition, color, and other graphic design fundamentals
- Experience with Adobe Photoshop, Illustrator, or other visual design tools
- Demonstrated GUI development skills through prior internships or interesting independent programming projects
- Ability to work in a team and independently where needed
- Excellent written and verbal communication skills
- Passion continuous learning and improvement

## **Preferred Capabilities and Experience**

- Computer Science or Computer Engineering majors
- Compelling portfolio of graphic design work

## **About BioCurie**

BioCurie is an early-stage biotechnology software company located in Wilmington, Delaware. BioCurie was co-founded in 2021 by Dr. Irene Rombel, a biopharma industry veteran, and Dr. Richard Braatz, a world leader in AI and data modeling for process control and biomanufacturing, and Edwin R. Gilliland Professor of Chemical Engineering at MIT.

## **Applying**

If you would like join us in this exciting journey in developing innovative AI-driven software products for cell and gene therapy production, please send the following:

- Resume
- Cover Letter
- References
- Transcript
- Any relevant examples of work products or projects

It is the policy of BioCurie to provide equal employment opportunities to all employees and employment applicants.

## **Contact**

If you have any questions or would like to apply, please contact us at:

**[contact@biocurie.com](mailto:contact@biocurie.com)**

We look forward to hearing from you!



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## Requirements

- Currently enrolled in a Bachelor's, Master's, or PhD degree program
- Skilled in Python
- Passion for coding and mathematics
- Excellent numerical and analytical skills
- Strong problem-solving and reasoning skills
- Knowledgeable programmer with an eye for detail
- Demonstrated programming skills through prior internships or interesting independent programming projects
- Ability to work in a team and independently where needed
- Good written and verbal communication skills
- Passion for continuous learning and improvement

## Preferred Capabilities and Experience

- Science/Engineering majors with strong Computer Science coursework or demonstrated experience are encouraged to apply.
- Software debugging skills, including using collaborative tools such as GitLab and/or GitHub.
- Experience with C/C++, Javascript, and related programming languages is beneficial.
- Experience with visualization would be useful.

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