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# Physics Digest

News, info, and updates for Ph.D. students in Physics at UW-Madison

August 20th, 2021

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## Announcements

### **Professor Kevin Black, Associate Chair for the Graduate Program**

Professor Kevin Black, Professor of Physics, is the new Associate Chair for the Graduate Program. Black has been involved in graduate education since he joined the faculty at UW-Madison in 2018. He led the PhD graduate program committee and the climate and diversity committee this past academic year. Black will work closely together with Dr. Jeff Schmidt, Director of Graduate Study (DGS), and Michelle Holland, Graduate Program Coordinator to provide leadership and vision for the PhD Program. Please join us in welcoming Professor Black to his new role!

### **New Graduate Certificate in Science Communication**

The UW-Madison Department of Life Sciences Communication has announced a new [Graduate Certificate in Science Communication](#) this Fall. The department is [building on the success](#) of their [Ph.D. Minor in Life Sciences Communication](#) by increasing access to a transcriptable certificate in science communication that is open to students in any graduate program at UW-Madison. To view open classes in this program and for more information, click [here](#). Contact [Tera Holtz Wagner](#) with any questions.

### **Open Seats in Physics 805 for Fall 2021**

Physics 805: Introduction to Neutrino Physics and Astrophysics is being offered this Fall semester. No background in neutrino physics, astrophysics, or field theory is required. If you are interested in this course please note that it will very likely not be offered again until 2023 or 2024. You can register for variable credits. If you have any questions please contact Professor [Baha Balantekin](#).

### **Open Seats: Women & Leadership in Science, Health, & Engineering**

This course is only taught in the Fall semester and will be taught this coming Fall by Drs. Megan Moreno (Professor and Vice Chair of Academic Affairs, Department of Pediatrics) and Beth Meyerand (Professor, Department of Medical Physics and Vice Provost for Faculty and Staff Affairs). A highlight of the course is the opportunity to engage with women leaders from across campus. Click [here](#) for more information.

### **Open Seats in MS&E 803**

MS&E 803: Quantum Materials and Devices is being offered this Fall semester. This course aims to introduce the fundamentals of quantum materials and survey of their critical device applications, which offer new approaches and great benefits to electronics and photonics. Click [here](#) to learn more and contact Professor [Jun Xiao](#) with questions.

### **Open Seats in Integrated Science 605**

This course aims to help new TAs gain skills in scientific teaching to be effective and efficient in their roles. You will get just-in-time support as you work with students, share experiences and innovative ideas with fellow TAs, and enhance your knowledge about teaching and learning. The course focuses on learning the core themes of scientific teaching (active learning, assessment, and diversity) and applying them to the courses that TAs are teaching. Click [here](#) to learn more and click [here](#) to request permission to enroll.

### **CQE: Graduate Students Wanted to Host Educational Videos**

*Deadline: August 31st, 2021*

The Chicago Quantum Exchange (CQE) is working to produce educational videos on the subject of quantum science and engineering to be posted on the CQE website as well as the CQE Youtube channel. They are seeking two enthusiastic CQE graduate students to host these videos. These videos are aimed at enthusing high school students with an understanding of quantum science and by an emotional/personal connection and excitement that may motivate a future career in quantum science. The hosts will briefly discuss their educational journeys to become quantum scientists, explain fundamental quantum concepts, and lead tours and/or discussions with researchers in CQE facilities, in a way that connects to an audience of high schoolers as they start to think about their upcoming career paths. Graduate students interested in this outreach opportunity should contact [Joe Heremans](#) and [Katherine Harmon](#) to arrange for a brief remote "audition." Filming will take place in late September/early October, at locations to be decided.

### **Campus Mask Mandate**

Chancellor Rebecca Blank instituted a campus-wide mask mandate effective August 5th. Under this policy, all students, employees, and visitors must wear masks when inside campus buildings. The full policy contains a list of scenarios in which masks may be removed and you can review it [here](#).

### **Fall 2021 Enrollment Happening Now!**

[Fall 2021 enrollment began on April 12th](#). If you need to enroll in Physics 990, please review the instructions

for adding by course number and the Physics 990 course numbers for Fall 2021 [here](#). The Graduate School maintains a policy page on [minimum enrollment requirements](#). For questions, contact [Jackson Kennedy](#).

### **Thesis Defenses**

#### **Coherent and Cavity-Based Measurement of Two-Particle States**

*Date: August 23rd, 2021; 4:00 PM*

Joelle Corrigan (Mark Eriksson, Faculty Advisor), Physics PhD Graduate Student, will defend their thesis.

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### **Upcoming Events**

#### **Department of Physics Event Calendar**

See the departmental events calendar to be sure you don't miss any of the upcoming seminars, workshops, or journal clubs, workshops!

#### **Student Affairs: Campus Happenings**

See the UW Student Affairs news website and scroll to the "current happenings" listing each week.

#### **ANL: The Five W's of Quantum**

*Date: August 26th, 2021; 7 PM CT*

Join two of Argonne's leading scientists in quantum who will present on Argonne's groundbreaking research and provide insight on what quantum information science is; why the development of this science and technology is so important; and who are the research institutions partnering with Argonne to make Chicago a national quantum tech hub. Click [here](#) for more information and click [here](#) to register to attend.

#### **U.S. Department of Energy Launches 2022 Geothermal Collegiate Competition**

The U.S. Department of Energy (DOE) announced the launch of the 2022 Geothermal Collegiate Competition, organized by the National Renewable Energy Laboratory and funded by DOE's Geothermal Technologies Office (GTO). This national competition encourages students to develop innovative solutions for geothermal applications through a year-long project that engages collegiate school teams to analyze geothermal energy for a community or campus application. Full details can be found on the [competition website](#).

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## Professional Development

### QED-C Student Research ePoster Sessions

The Quantum Economic Development Consortium hosts monthly Student Research ePoster Sessions in which students present on their research in quantum computing to a diverse audience of researchers, employers, students, and QED-C community members. Presentations last 10 minutes followed by a 5-minute Q&A session. This is a fantastic opportunity to expand on your presentation skills and to display your prowess in the field of quantum computing. If you are interested in participating, contact [Jackson Kennedy](#).

### Teaching Inclusively & Equitably from the First Day of Class

*Date: August 24th, 2021; 12:30 PM - 2:30 PM*

First impressions matter, and research demonstrates that building a student's sense of belongingness is key to their academic success. So how can we, as classroom leaders and facilitators, ensure our students' first impression of class makes them feel comfortable and empowered to learn? In this Delta Program workshop learn how to set expectations and make a great impression starting on day one. To register, click [here](#).

### UW-Madison Teaching Academy: 2021 TA-LEaP

*Date: August 25th-26th, 2021*

LEaP into teaching! Learn the basics of how we learn along with the 7 things UW-Madison students want most from their instructors! Explore the basics of syllabus, assignment and rubric design. Discuss assessment and learn the most common mistakes instructors make on exams, and how to avoid them! Learn simple active learning techniques that you can apply in your classroom immediately and start developing materials for your own course while you learn! Become part of a community of practice with colleagues in all disciplines and get connected to other teaching and learning programs across the campus through the Teaching and Learning Collaborative.

### Remote and On-site Office Hours That Students Use

*Date: August 25th, 2021; 10 AM - 12 PM CT*

As instruction returns to in person, many educators are offering onsite office hours, and some will continue remote office hours that offer flexibility for students. Attend this Delta Program workshop to get concrete ideas and plan how you'll run your office hours to ensure your students get their needs met, and take advantage of collaborative opportunities while managing technical challenges. To register, click [here](#).

### CQE: Quantum Sensing in Atomic and Solid-State Systems

*Date: September 2nd, 2021; 11 AM CT*

The Chicago Quantum Exchange (CQE) will be hosting Hamamatsu. In this talk, Jennifer Choy, Ph.D., of the University of Wisconsin-Madison describes the realization of quantum sensors in two material platforms: neutral alkali atoms and artificial atoms in diamond. To register to attend, click [here](#).

### Women in Science Conference

*Date: September 18th-19th, 2021*

The Women in Science Conference (WISC) invites graduate students to attend and to apply to present their research. WISC is a conference led by graduate students with the intent of providing other women and gender minorities in STEM with an opportunity to highlight their research, as well as providing networking and career development opportunities with leading professionals in the field. Those attending the conference will be able to present their research through poster and oral presentations, participate in career development workshops and events, and attend three keynote talks by leading professional women in STEM. Registration is due by September 8th and applications to present and for grants to cover the cost of attendance are due August 20th. For more information, click [here](#).

### Rising Stars Symposia

*Date: September 2021*

The University of Chicago invites applications for its 2021 Rising Stars Symposia, which will recognize the achievements of early career researchers working in the fields of Soft and Biological Materials, Quantum Science and Technology, and Experimental Particle Physics. For more information and to apply, click [here](#).

### CQE: Open Quantum Initiative Workshop

*Date: September 22nd - 23rd, 2021*

The Open Quantum Initiative (OQI) is a group of researchers, educators, and leaders among the Chicago Quantum Exchange (CQE) that champions the values of diversity, equity, and inclusion in quantum science. This virtual workshop will discuss the prevailing issues and barriers in the emerging field of quantum

computing. Specifically, the workshop will help the CQE develop a program for undergraduate scientists early in their quantum careers to gain research experiences and build professional networks. Workshop participants will learn how they can engage with these efforts and become a more informed member of and advocate for an open quantum community. To register to attend, click [here](#).

#### **Quantum Creators Prize Symposium**

*Date: September 29th -30th, 2021*

The University of Chicago is hosting the first annual Quantum Creators Prize Symposium which aims to promote the achievements of early-career researchers working in exciting new directions of quantum science and increase the diversity of researchers in the field. Researchers who are selected will receive an honorarium and a prize certificate for their participation in the symposium. Graduate students from any institution are encouraged to apply. Applications for the Quantum Creators Prize Symposium are due August 15, 2021. To learn more about the symposium and how to apply, click [here](#).

### **Employment Opportunities**

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#### **Qubit by Qubit: Teaching Assistant**

*Deadline: August 22nd, 2021*

**Qubit by Qubit** is seeking applications for teaching assistant roles in their upcoming two-semester Introduction to Quantum Computing course for high school students. Through two semesters of weekly lectures, lab sections, and homework assignments, students will develop a foundational understanding of quantum computing. TAs are an integral part of the academic year program and the student experience. They are responsible for leading weekly lab sections and supporting student support needs. Click [here](#) for the position description, click [here](#) to apply, and send all questions to [Kiley Foster](#).

#### **IAIFI Postdoctoral Fellowship Competition**

*Deadline: September 21st, 2021*

The Institute for Artificial Intelligence and Fundamental Interactions has opened its Postdoctoral Fellowship competition for early-career scientists. These Fellows will spark vital interdisciplinary, multi-investigator, multi-subfield collaborations. IAIFI aims to appoint three new postdoctoral IAIFI Fellows each academic year, for a three-year fellowship term each. To apply, click [here](#).

#### **Princeton University: Robert Dicke Fellowships Postdoctoral Positions**

*Deadline: October 22nd, 2021*

The Princeton University Physics Department seeks exceptional recent Ph.D. recipients in experimental physics for an honorific postdoctoral fellowship program. Candidates from all areas of experimental physics will be considered and selected through an annual competition. The selected scholars are expected to work with the existing experimental groups in the department, although those who wish to pursue a specific independent research program will also be considered. Princeton has experimental research programs in Atomic Physics, Biophysics, Condensed Matter Physics, Cosmology & Gravitation, High Energy Physics, and Particle Astrophysics. In their application, applicants are encouraged to discuss potential research group or groups that they would be interested in working with. This year the Physics Department will select two postdoctoral research scholars with annual appointments including salary, benefits, and \$9,000 in discretionary funds. For more information and to apply, click [here](#).

#### **UCLA: QuBiT Lab Postdoctoral Position**

The Quantum Biology Tech (QuBiT) Lab at UCLA, is searching for postdoctoral candidates with quantum optics/spin physics experience. The QuBiT Lab's mission is to establish the extent to which quantum mechanics accounts for biologically relevant phenomena, and can be manipulated to technological and therapeutic advantage. For more information, click [here](#) and contact [Clarice Aiello](#) to apply.

#### **Utah State University SDL: Quantum Sensing and Timing Scientist**

The Quantum Sensing and Timing (QST) group at Space Dynamics Laboratory focuses its efforts on building inertial measurement devices, atomic clocks, and other photonics-based quantum sensors. Laboratory activities involve laser cooling of atomic gases, optical tweezers, frequency combs, optical communication, and frequency metrology. This position is first to understand the mission (Position, Navigation, and Timing applications), and then to imagine what sort of photonic/atomic device could address the mission, work with the team to design the overall sensor concept (utilizing appropriate modeling platforms), and ultimately build the sensor. Click [here](#) to apply.

#### **ENS Paris: PhD Scholarship and Postdoctoral Position**

The Kastler Brossel Laboratory at ENS Paris is hiring a two-year postdoctoral position and is offering a

