



The Physics Observer

Nov 4, 2021

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UPCOMING EVENTS

Friday, November 5,
2021 - 2:30pm, [Zoom](#)
[ABC Physics:](#)
[ColdQuanta's cold atom approach to scaling quantum computing](#)

Dr. Tom Noel,
ColdQuanta

Monday, November 8,
2021 - 4:00pm, PAA
A-102
[Physics Colloquia:](#)
[Accelerating Particle Physics Discovery with Artificial Intelligence](#)

Welcome

The Physics Observer is a periodic bulletin of happenings in and around UW Physics. Our goal is to share information of notable happenings, events, and news associated with the department. Please feel free to pass this newsletter to anyone who may be interested. Readers wishing to subscribe, or unsubscribe, may do so [here](#). Previous newsletters may be found on the physics website at [The Physics Observer Newsletter](#). Information for future editions may be sent to the editor, Alexis Hall.

Chair's Corner (L. Yaffe)

Every month I look through papers on the physics archive, [arXiv.org](#), which have been recently posted by department members, and include in this newsletter an eclectic selection of those which particularly caught my interest. This month there is an especially rich and diverse set of recent papers, nicely illustrating the great breadth of research in UW Physics. Clearly, despite some pandemic induced slowdowns, many students, postdocs, and faculty have been very busy!

Congratulations are in order to Armita Nourmohammad, recipient of the 2022 Early Career Award for Biological Physics, David Hertzog, recipient of the Bonner Prize in Nuclear Physics, and David Kaplan, recipient of the Feshbach Prize in Theoretical Nuclear Physics, all from the American Physical Society.

Milestones & Arrivals

- ★ **Sandra Maddox**, the new Academic Counselor for undergraduates, will join the Physics Department November 16th, 2021.

Research Awards & Grants

- ❖ **Assistant Professor Armita Nourmohammad** has received the 2022 Early Career Award for Biological Physics “*For the creative development of theoretical and data-driven approaches to the dynamics and evolution of the adaptive immune system, grounded in non-equilibrium statistical physics and information theory.*”
- ❖ **Professor Kaplan** has been awarded the 2022 Herman Feshbach Prize in Theoretical Nuclear Physics for “*multiple foundational innovations in nuclear theory, including in lattice quantum chromodynamics, effective field theories, and nuclear strangeness, and for strategic leadership to broaden participation between nuclear theory and other fields.*”
- ❖ **Professor Hertzog** has received the 2022 Tom W. Bonner Prize in Nuclear Physics for “*advancing the frontiers of understanding nature's fundamental symmetries via unprecedented precision studies of the muon, including its lifetime, its anomalous*

Shih-Chieh Hsu,
University of Washington

Tuesday, November 9,
2021 - 3:00pm, PAT
C-211

[Physics Department: General](#)

[Exam: Characterizing,
assessing, and developing
physics covariational
reasoning at the introductory
level](#)

Charlotte Zimmerman
(Advisor: Suzanne White)

Tuesday, November 9,
2021 - 3:00pm, PAT
C-421

[DUSC: Constraining Dark](#)

[Matter Interactions](#)

[Throughout Cosmic History](#)

Benjamin Wallisch

Wednesday, November 10,
2021 - 10:30am, PAT C520

[Physics Department: General](#)

[Exam](#)

Roland Carlos Farrell
(Advisor: Silas Beane)

Monday, November 15,
2021 - 4:00pm, PAA
A-102

[Physics Colloquia: Integrated](#)

[Quantum optics with defect
centers](#)

Marina Radulaski, UC
Davis

Tuesday, November 16,
2021 - 11:00am, ZOOM

magnetic moment, and its measurement by the pseudoscalar coupling constant."

- ❖ [Professor Deep Gupta](#) has been elected a 2021 Fellow of the American Physical Society.
- ❖ [Alumni Blas Uberuaga](#) (PhD in 2000) was recently named a Fellow of Los Alamos National Laboratory.
- ❖ [Professor Anna Goussiou](#) received \$55k from the US Department of Energy (DOE) for US ATLAS Software Development.
- ❖ [Professor Emeritus Thompson Burnett](#) received \$25k from the National Aeronautics and Space Administration (NASA) for Gamma Large Area Space Telescope (GLAST) Computing.
- ❖ [Professor Martin Savage](#) received \$368k from the US Department of Energy (DOE) for Fermilab Savage.

Department Resources & News

For benefits-eligible employees, **Open Enrollment** is a once-a-year opportunity to make changes to health plan elections or enroll in a Flexible Spending Arrangement (FSA) or the Dependent Care Assistance Program (DCAP). Employees make changes in Workday, and changes must be submitted by **11:59 p.m. PST on Nov. 30**. Open Enrollment elections go into effect on Jan. 1, 2022.

UW Combined Fund Drive Holiday Wreath Fundraiser: We are again partnering with Sherwood Forest Farms on a fundraiser to support [LIHI's Tiny Houses program](#)! Support our featured nonprofit by purchasing a mixed Evergreen wreath or Noble Fir door swag, with pick-up locations on UW main campus and delivery to the UW Bothell and UW Tacoma. Order between **October 6 – November 7, 2021** via *credit card*.

The **Montlake Bridge** will be closed on the weekends of Nov 20-21.

Assorted Talks & Meetings

SPS will be resuming their **Weekly Lunchbox Seminars** in the SPS lounge (PAB B135) **Mondays at 12:30**, where you get a chance to get your research/physics career questions answered by the departmental colloquium speakers in an inviting and informal setting and then, if you wish, stay for pizza (to be eaten outside).

UW Combined Fund Drive Lunch & Learn: Each one-hour lunch and learn will be held virtually via Zoom and feature 3-4 UWCFD member nonprofit organizations working in these thematic areas. Sessions are from 12 – 1 p.m. and are open to anyone interested. Register at the link provided. Questions? Email us at uwcfid@uw.edu.

Scientific Quantum Computing and Simulation on Near-Term Devices: Quantum Simulations of Strongly Correlated Systems November 8-12, 2021: This workshop will highlight recent advances in quantum computing promising near-term impact on our understanding of strongly-correlated quantum systems. The format includes significant discussion time to develop and disseminate new results and ideas from a variety of technologies. We will highlight the impact of atomic and molecular experiments and digital quantum computers on a diverse array of problems in nuclear, AMO, and condensed matter physics.

Quantum computing and the science of strongly correlated systems November 8-9, 2021. The conference will highlight applications of present and near-term devices to impact multiple fields of quantum science, emphasizing strongly-correlated quantum systems that are difficult to treat classically. Atomic and molecular experimental approaches as well as gate-based quantum computers will be explored along with theory and algorithms. The organizers seek to highlight near-term advances that will impact multiple fields of science.

[Physics Department: Final Exam: A Search for Wavelike Dark Matter with Dielectrically-loaded Multimode Cavities](#)

Raphael Cervantes (Advisor: Gray Rybka)

Monday, November 22, 2021 - 11:00am, PAB C-231

[Physics Department: General Exam](#)

Jared Canright (Advisor: Suzanne White)

Monday, November 22, 2021 - 2:30pm

[InQubator for Quantum Simulation \(IQUS\): SU\(2\) lattice gauge theory on a quantum annealer](#)

Randy Lewis, York University

Monday, November 22, 2021 - 4:00pm, PAA A-102

[Physics Colloquia: TBA](#)

Martin Savage, University of Washington

Monday, November 29, 2021 - 2:30pm

[InQubator for Quantum Simulation \(IQUS\): TBA](#)

Stephen Jordan, Microsoft

November 9, 10am-3pm, [DOE Summer 2022 Virtual Internship Fair](#): You are invited to join this highly interactive event to learn more about the U.S. Department of Energy Community College Internships (CCI) and Science Undergraduate Laboratory Internships (SULI) programs. These stipend-based 10-week programs provide technical training and research opportunities at the national laboratories and facilities. Register now to engage with lab recruiters and scientists to find your place for the Summer 2022 term!

November 15-19, [African Physical Society Conference](#) (virtual). The conference hopes that you will join them to communicate and celebrate Big Science and Big Goals for Africa!

Abstract submissions open for [2022 APS April Meeting](#), New York, **April 9-12, 2022**. The deadline to submit an abstract is **December 20, 2021**.

[Conference for Undergraduate Women in Physics \(CUWiP\) at Central Washington University \(CWU\), January 21 – 23, 2022](#): CUWiP provides undergraduate women and underrepresented groups an opportunity to engage with graduate schools, scientists, researchers, professionals and to meet other women studying and pursuing degrees in physics and related sciences at a conference specifically designed to address their academic, career, lifestyle and professional needs. Check out the full [schedule](#).

Funding Announcements

[Research Publication Grants in Engineering, Medicine and Science](#): Applications open for women scholars to apply for research publication grants from the **American Association of University Women**. 10-35K, US citizens or permanent residents only. Deadline **December 1, 2021**.

Applications open for the **[2022 Ford Foundation fellowship programs](#)**, funding both predoctoral (27K/yr for 3 years), dissertation (28K for one year), and postdoctoral (50K for one year) fellowships. Deadlines **December 9 or 16, 2021**.

[NSF Mathematical and Physical Sciences Ascending Postdoctoral Research Fellowships](#) (MPS-Ascend), supporting postdoctoral Fellows who will broaden the participation of groups that are underrepresented in MPS fields in the U.S. The program is intended to recognize beginning investigators of significant potential and provide them with experience in research that will broaden perspectives, facilitate interdisciplinary interactions and help broaden participation within MPS fields. US citizens or permanent residents webinar: **11am, Nov 10**

(https://nsf.zoomgov.com/webinar/register/WN_11eBe4jnTNuyqf_ypMzwsA).

Application **deadline January 6, 2022**.

DOE Office of Science, Science Undergraduate Laboratory Internships (SULI), Community College Internships (CCI), and Visiting Faculty Program (VFP) summer internships. See [here](#). **Deadline January 12, 2022**.

[Part time Next-Generation Fellowship from the Physicists Coalition for Nuclear Threat Reduction](#): The Physicists Coalition for Nuclear Threat Reduction, an initiative based at Princeton University's Program on Science and Global Security and supported by the American Physical Society (APS), seeks to mobilize a national network of physicists interested in being informed advocates to policymakers and to the public on the nuclear weapon threat and opportunities for its reduction. **Deadline November 30**.

[NSF Science and Technology Centers \(STC\)](#): [UW](#) Science and Technology Centers: Integrative Partnerships, and [NSF](#) Science and Technology Centers: Integrative Partnerships. Internal UW **deadline, December 23**.

Thursday, December 2,
2021 - 10:00am, PAT C520 /
Zoom

Physics Department: General
Exam

Zachary Montague (Chair:
Armita Nourmohammad)

Friday, December 3, 2021 -
2:00pm, Zoom

Physics Department: Final
Exam: Novel methods in
trapped-ion quantum
computing:
single-photon-sensitive
time-resolving camera,
sympathetic cooling, and
qubits

Liudmila Zhukas (Advisor:
Boris Blinov)

SOCIAL MEDIA

[Instagram](#)

[Facebook](#)

[YouTube](#)

[Twitter \(@physicsuw\)](#)

[Vimeo](#)

[Pinterest](#)

German Academic Exchange Service (DAAD) 2022 summer internship programs:
[Research Internships in Science and Engineering \(RISE\) Germany](#) and [RISE Professional](#). **Deadline December 15.**

Job Opportunities

At CERN Switzerland:

- [Corresponding Associateship](#).
- [Scientific Associateship](#).
- [Senior Applied Fellowship in Experimental/Theoretical Physics](#).
- [Project Leader of the CERN Neutrino Platform](#).
- [Senior Applied Fellowship in Experimental/Theoretical Physics](#).
- [PhD Position in Theoretical Physics](#).
- [Senior Research Fellowship in Theoretical and Experimental Physics](#).

United States of America Opportunities:

- [Assistant Professor](#), Physics and Astronomy, Rice University.
- [Assistant Professor](#), Theoretical Physics, MIT, [Info here](#).
- [Assistant Professor](#) of Astronomy, Cal State Long Beach, [Info here](#).
- [Assistant Professor](#), Condensed Matter and AMO, New York University, [Info here](#).
- [Assistant Professor](#), Nuclear Theory, University of Houston, [Info here](#).
- [Assistant Professor](#), Electrical Engineering, Princeton University, [Info here](#).
- [Assistant Professor](#), Gravitational Wave Experiment, UC Berkeley, [Info here](#).

Selected Publications

- "The Selena neutrino experiment", A. Chavarria, <https://arxiv.org/abs/2111.00644>.
- "Risk-utility tradeoff shapes memory strategies for evolving patterns", A. Nourmohammad, et al., <https://arxiv.org/abs/2110.15008>.
- "Gravitational anomaly of 3+1 dimensional Z_2 toric code with fermionic charges and fermionic loop self-statistics", L. Fidkowski, et al., <https://arxiv.org/abs/2110.14654>.
- "Koszul duality in quantum field theory", N. Paquette, et al., <https://arxiv.org/abs/2110.10257>.
- "Evidence for equilibrium excitons and exciton condensation in monolayer WTe₂", B. Sun, W. Zhao, T. Palomaki, Z. Fei, E. Runburg, P. Malinowski, J. Cenker, J.-H. Chu, X. Xu, D. Cobden, et al., <https://arxiv.org/abs/2110.14104>.
- "Cumulants: It's more than you think", A. Sorensen, D. Oliinychenko, L. McLerran, et al., <https://arxiv.org/abs/2110.11471>.
- "Entanglement structures in quantum field theories: negativity cores and bound entanglement in the vacuum", Martin J. Savage, et al., <https://arxiv.org/abs/2110.10736>.
- "First probe of sub-GeV dark matter beyond the cosmological expectation with the COHERENT CsI detector at the SNS", J. Detwiler, M. Durand, et al., <https://arxiv.org/abs/2110.11453>.
- "Dark matter axion search using a Josephson traveling wave parametric amplifier", C. Bartram, T. Braine, R. Cervantes, N. Crisosto, N. Du, G. Leum, P. Mohapatra, T. Nitta, L. Rosenberg, G. Rybka, J. Yang, et al., <https://arxiv.org/abs/2110.10262>.
- "Incoherent excitation of coherent Higgs oscillations in superconductors", B. Spivak, et al., <https://arxiv.org/abs/2110.09552>.
- "Electronic pumping of heat without charge transfer", A. Andreev, <https://arxiv.org/abs/2110.08361>.

- "Search for "invisible" axion dark matter in the 3.3-4.2 μeV mass range", C. Bartram, T. Braine, R. Cervantes, N. Crisosto, N. Du, G. Leum, P. Mohapatra, T. Nitta, L. Rosenberg, G. Rybka, J. Yang, et al., <https://arxiv.org/abs/2110.06096>.
- "First constraints on dark photon dark matter with superconducting nanowire detectors in an optical haloscope", M. Baryakhtar, et al., <https://arxiv.org/abs/2110.01582>.