

Spring 2023 Newsletter

Dear Alumni and Friends,

The Department of [Physics and Astronomy](#) extends its kindest greetings to you and yours and hopes all is well.

These past few academic years have been a whirlwind of positive activity for the Department, from a brand new website to many inaugural events, and we would like to let you know more about what's happened!

As we transition out of the Covid-19 era, we are thankful for the shift towards normalcy. As this troubling period comes to a close, we want to reinvigorate our Department so we can climb to new heights and unravel more scientific mysteries. To help the Department do so, we are looking into establishing an official alumni network. More news will come about this, but in the meantime we hope to reconnect with you through this newsletter outlining various accomplishments over the past few years.

Of note is the flurry of research papers and announcements that are too numerous to include in this newsletter. For an overview of these many well-deserved announcements, please check our [Research](#) site and associated [archive](#).

Sincerest wishes,

Chang Kee Jung
Distinguished Professor and Chair
Department of Physics and Astronomy



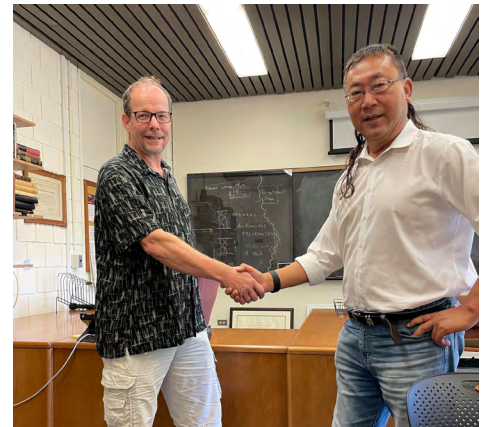


Stony Brook Department of Physics and Astronomy 2022

New Department Chair and Members

Changing of the Chair

The Fall 2021 semester saw the transition of Department Chair from Axel Drees, who provided outstanding leadership for the last six years, to Chang Kee Jung. Exciting times are ahead for our Department!



Change of UPD

The Spring 2022 semester saw Dominik Schneble start as new Undergraduate Program Director replacing Bob McCarthy who excellently served in that position for many years (two different times). We deeply appreciate his service. Bob will continue overseeing the Master of Arts in Teaching (MAT) program. Thank you Prof. McCarthy!



Brookhaven National Laboratory's New Director JoAnne Hewett To Join Stony Brook Faculty

Dr. JoAnne Hewett, the new and first ever woman director at BNL, has recently been appointed as a tenured professor in our Department and the YITP! As director, she will oversee the lab at this critical time as BNL prepares to construct the Electron-Ion Collider.

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Department Send-Off for Jeff Slechta

The Department gathered to say its farewells and wellwishes to Jeff Slechta, who retired after 40+ years working in the Department machine shop. We reflected upon several of Jeff's invaluable and creative contributions to the research projects by the faculty that led to major discoveries and scientific advances. We congratulate Jeff on his retirement and wish him well in the future!



Professor Warren Siegel Retires

YITP Professor Warren Siegel has retired after many years of dedicated service to our field. Dr. Siegel joined our Department in 1988, and has since worked on many interesting and important topics.

We wish Dr. Siegel well in the future, and thank him for his years of service!



Awards, Prizes, and Honors

Barry Barish Awarded Copernicus Prize

Dr. Barish, a Nobel Laureate who will join our Department as the inaugural President's Distinguished Endowed Chair in Physics, received the award for his "exceptional contributions to the development of world science."

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Hal Metcalf Receives Esther Hoffman Beller Medal

Dr. Metcalf was honored specifically for his outstanding mentorship of undergraduate students in hands-on optics research and for organizing an annual symposium for students to present their work during the FiO/LS conference. This is a richly deserved award. The Department appreciates Dr. Metcalf very much, and we are all proud of his achievement!

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Dmitri Kharzeev Elected to The Academy of Europe



Dr. Kharzeev has been elected to the Academy of Europe to help achieve their goal of advancing excellence in scholarship across all disciplines.

[Read more about the Academy's purpose here](#)

Chang Kee Jung Wins American Physical Society's 2022 Lilienfeld Prize

The Lilienfeld Prize is an APS society-wide prize and recognizes outstanding contributions to physics from a single individual who also has exceptional skills in lecturing to a diverse range of audiences.

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Nikita Nekrasov Awarded 2023 Dannie Heineman Prize for Mathematical Physics

Dr. Nekrasov was awarded for his research and "elegant application of powerful mathematical techniques to extract exact results for quantum field theories."

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Abhay Deshpande Named AAAS Fellow

Dr. Abhay Deshpande was named a Fellow of the American Association for the Advancement of Science (AAAS) for 2021. This honor is bestowed upon members whose "efforts on behalf of the advancement of science, or its applications, are scientifically or socially distinguished."

Congratulations to Dr. Deshpande on his accomplishment!



Tom Hemmick and Jac Verbaarschot named APS Fellows

This honor signifies recognition by one's peers for their contributions to physics. Dr. Verbaarschot was recognized for the "development of randommatrix theory methods and their applications in atomic nuclei and in nonperturbative quantum chromodynamics." Dr. Hemmick received the honor for leadership and innovation in developing new detector for leadership technologies for nuclear and particle physics," as well as for his teaching contributions.

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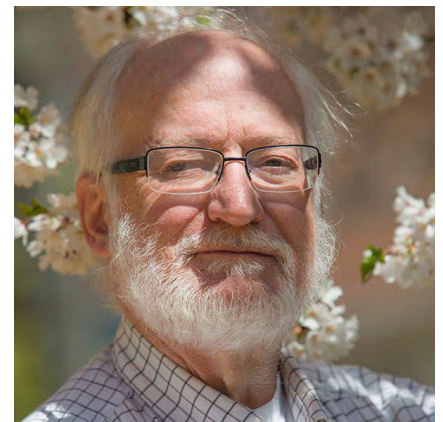


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James Lattimer Named American Astronomical Society Fellow

Dr. Lattimer has been selected as a 2023 Fellow of the American Astronomical Society, for his formative discoveries about the evolution and structure of neutron stars.

[Read More](#)



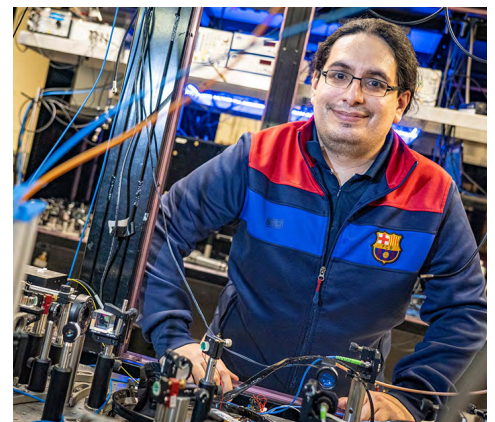
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SBU Awarded \$6.5M Grant to Build a New Quantum Internet Test Bed

Dr. Eden Figueroa has made strides in advancing quantum networking. As a testament to the progress being made, a new test center will catalyze new technologies to accelerate today's internet functionality, improve the security of our communications, and enable dramatic advances in computing.

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[See Additional News Here](#)



Faculty and Staff Recognized with SUNY Awards

SUNY Distinguished Professors

Three of our faculty members were recently appointed to the rank of Distinguished Professor — a prestigious honor bestowed upon professionals of the highest caliber — by the State University of New York (SUNY) Board of Trustees.

Congratulations to Drs. Shrock, Deshpande and Rocek on this honor!



Robert Shrock 2021-2022

[Read More](#)



Abhay Deshpande 2021-2022



Martin Rocek 2022-2023

[Read More](#)



Chancellor's Award for Excellence

Three of our department members recently received SUNY Chancellor's Awards for Excellence. The awards are system-level honors conferred to acknowledge and provide system-wide recognition for consistently superior professional achievement and to encourage the ongoing pursuit of excellence.

Congratulations to professor Ismail Zahed for receiving the award in Scholarship and Creative Activities, and Jin Bentley and Dean Schamberger for receiving the award in Professional Service.



Ismail Zahed 2021-2022



Jin Bentley 2021-2022



Dean Schamberger, 2023

Department Members Awarded NSF Early Career Awards

Two of our junior faculty members, Cyrus Dreyer and Navid VafaeiNajafabadi, won prestigious NSF Early Career Awards! Both professors are dedicated to undergraduate education and early research involvements besides excelling in their own respective research.

[Read More](#)



Cyrus Dreyer



Navid Vafaei-Najafabadi



Jennifer Cano Awarded Sloan Research Fellowship

The fellowship rewards outstanding early-career faculty who have the potential to revolutionize their fields of study, as well as in recognition of distinguished performance!

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Physics Postdoc Named Finalist in Blavatnik

Irina Petrushina was one of only nine honorees for 2021. Her research focuses on two separate accelerator technologies: laser wake field accelerators and superconducting radiofrequency (SRF) photoinjectors. Her work on SRF photoinjectors has led to improved designs to enhance their performance!

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Two Research Projects Involving SBU Faculty Receive DOE INCITE Awards

Drs. Alan Calder, Michael Zingale, and Sergey Syritsyn have been awarded supercomputer access from the DOE for their projects. In the first project, "Approaching Exascale Models of Astrophysical Explosions," Calder and Zingale aim to produce models of burning and flame propagation in neutron stars as models for X-ray bursts. In the second project, "Internal Structure of Strong Interaction Nambu-Goldstone Bosons," Syritsyn and collaborators will carry out precision lattice QCD calculations of the inner structures of the pion and kaon.

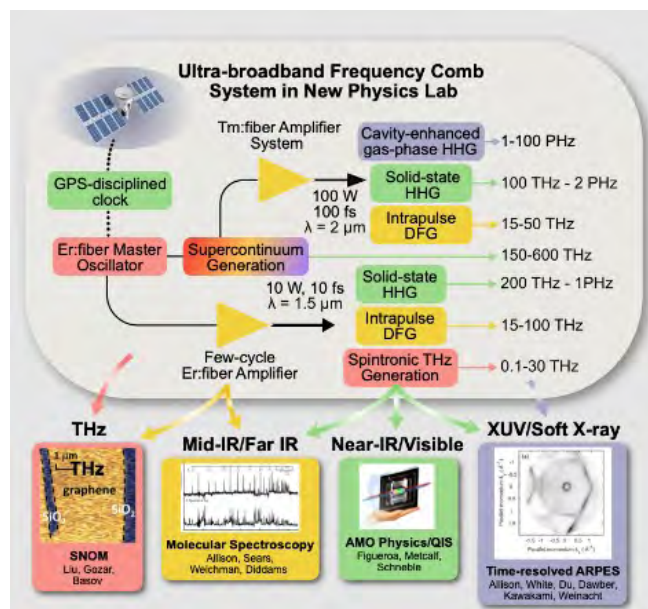
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Faculty Receive NSF Major Research Instrumentation Grant

The groups of Professor Tom Allison and Professor Mengkun Liu have been awarded a Major Research Instrumentation grant from the National Science Foundation, totalling almost \$1 million over 5 years! The grant, titled "Development of Ultra-Broadband High-Power Frequency Comb Light Source for Advanced Spectroscopy and Imaging," will allow the teams to develop a new frequency comb light source at Stony Brook, with output spanning a wide range of the electromagnetic spectrum (from the terahertz region all the way to the soft x-ray region).

[See the Grant Announcement Here!](#)



Physics and Astronomy Earns Top Honors for Teacher Preparation Program

Our Masters of Arts in Teaching (MAT) program received the 2020-2021 5+ Club award for graduating five (5) or more physics teachers. We are one of only nine institutions recognized in the nation.

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Jin Koda Receives Two 2022 CAS Teaching Awards

Congratulations to Jin Koda for being a 2022 recipient of the following awards from the College of Arts and Sciences: the Godfrey Excellence in Teaching Award, and the John S. Toll Endowed Award for Teaching Excellence. Professor Koda was selected by the [Dean's Student Advisory Council](#) to receive these awards based on his exceptional teaching and passion for his field of study, as well as for the mentorship of his students. Congratulations, Professor Koda!



Michael Zingale Receives Outstanding Faculty Award

Professor Zingale received the Outstanding Faculty Award for 2022. The award recipient was determined by vote from the Department's graduating class. Congratulations, Professor Zingale!



Yiyang Jia Receives President's Award for Distinguished Doctoral Students

The award is given to candidates who have demonstrated the outstanding merit of their research, as well as their contributions in ability or service to the university itself. Only five awards each year are granted to outstanding graduates.

Congratulations on this hard earned achievement, Yiyang!



Derek Pope Wins 1st Place in 2022 3MT Competition

Derek Pope, a Science Education PhD student, won 1st place in the 2022 Three Minute Thesis competition with his talk titled "Imagine Actually Understanding Math? Student teachers' beliefs about how math should be taught." View the final round of the 2022 competition at [SBU's 3MT page](#).



Niveditha Ramasubramanian Selected for 2022 RHIC & AGS Thesis Award Competition Award

Niv Ramasubramanian, who was advised by Tom Hemmick and Gabor David, and graduated in May 2022, was selected as one of the winners of the 2022 RHIC & AGS Thesis Award Competition for her thesis "Validation of the Glauber model for centrality determination in small system collisions."

Congratulations to Niv!



Allen Pierre-Louis Wins First Prize for Nuclear and Particle Physics Oral Presentations at 2022 NSBP Conference



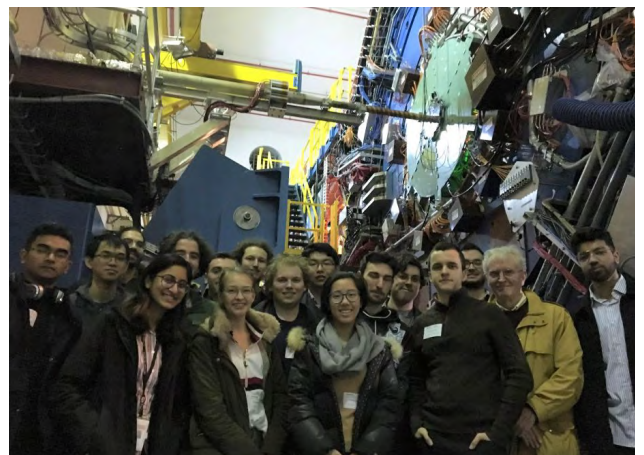
At the 2022 National Society of Black Physicists (NSBP) Conference, Allen Pierre-Louis (third from left in the picture) won the first prize for nuclear and particle physics oral presentations with his talk High Q2 electronproton elastic scattering at the future Electron-Ion Collider. Allen is also the president of the SBU Chapter of the NSBP and is one of the student council members for NSBP nationally. The SBU Chapter was approved as an official university club with about 12 members! After attending Stony Brook for undergrad, Allen interned at BNL under Dr. Deshpande with whom he did

research. He eventually became a GEM fellow at BNL and published a paper with Dr. Deshpande and Barak Schmookler on the future electron ion collider. Dr. Mickey Chiu, Dr. Abram Ledbetter, and Noel Blackburn were instrumental in helping him while at BNL. Allen was joined by Leonardo Pierre (SBU P&A undergrad) and Prof. Chang Kee Jung at the conference in Charlottesville, Virginia. Congratulations to Allen!

[See more of the photos from the event here!](#)

Physics Students Win National Recognition

The National Council of Society of Physics Students (SPS) awarded the Stony Brook University SPS Chapter as a 2021-22 Outstanding Chapter. The Society of Physics Students (SPS) is a professional association designed for students and membership is open to anyone interested in physics and related fields. SPS operates within the American Institute of Physics (AIP), an umbrella organization for professional physical science societies. This is a great and well deserved recognition, given to less than 15% of SPS chapters each year. Congratulations to the SPS leadership! We are very proud of our Stony Brook SPS Chapter.



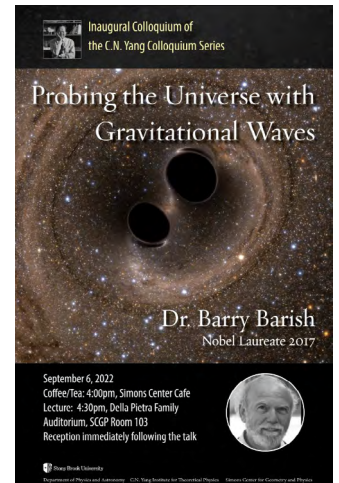
[To learn more about our university's SPS chapter, click here!](#)

Significant Events and News

Inaugural C.N. Yang Colloquium presented by Nobel Laureate Dr. Barry Barish

The inaugural C.N. Yang Colloquium was presented by Dr. Barry Barish who shared the 2017 Nobel Prize in Physics for the observation of gravitational waves with the historic LIGO experiment. The C.N. Yang Colloquium series has been newly established in the Department of Physics and Astronomy in honor of Dr. C.N. Yang and it is co-hosted by the Department of Physics and Astronomy, the C.N. Yang Institute for Theoretical Physics and the Simons Center for Geometry and Physics.

[To see the poster, click here!](#)



sPHENIX Construction

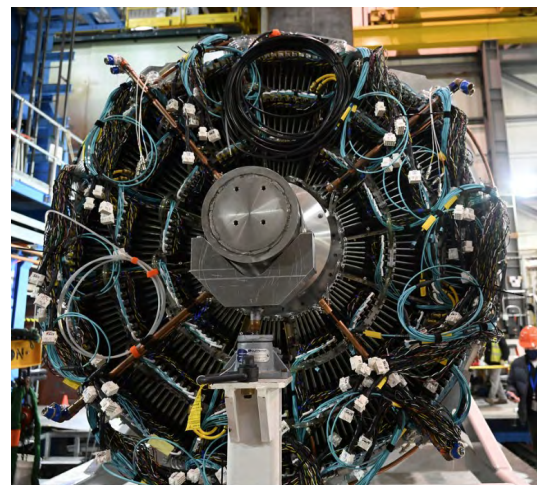
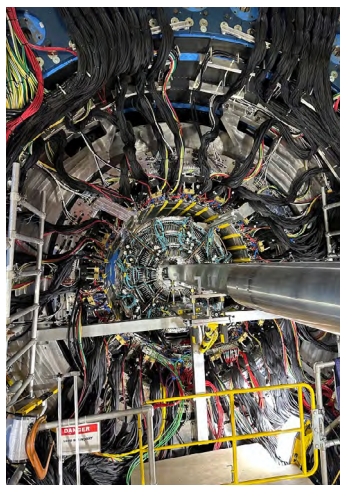
The machine shop crew has successfully completed construction of the iHCAL sled for the sPHENIX Detector at BNL. A major accomplishment!



Time Projection Chamber Installed in sPHENIX

A state-of-art Time Projection Chamber (TPC) that will be the central tracking system for the sPHENIX detector that was built at Stony Brook under the leadership of Prof. Tom Hemmick has been installed. It involved many members of the experimental nuclear physics group and the machine shop. To see more photos of the occasion, [please see here!](#)

[Brookhaven National Laboratory's news team also wrote about this significant event, which you can read here.](#)

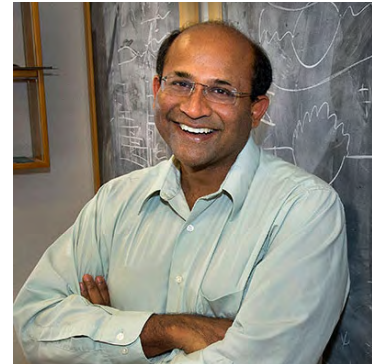


SBU, BNL Physicist in Simons Foundation Collaboration to Explore Building Blocks of Matter

"By understanding confinement, we can learn fundamentally how hadrons — protons, neutrons and other composite particles made of quarks and gluons — are put together."

-- Dr. Venugopalan, adjunct professor.

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The Ernest Courant Traineeship in Accelerator Science & Engineering is Developing the Next Generation of Particle Accelerator Talent

In collaboration with Brookhaven National Laboratory, Cornell, and FERMI National Accelerator Lab, Stony Brook has established this program to train scientists with the aim of advancing accelerator science. This program also develops the educational training to provide access to research accelerators, and expands interdisciplinary studies utilizing them.

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New MS Program in Quantum Information Science and Technology

The Department is pleased to announce the creation of a new MS program in Quantum Information Science and Technology (QIST)! Professors Matt Dawber and Tzu-Chieh Wei successfully championed this proposal to the New York State Education Department, who recently gave approval! The program will commence in Fall 2023 and will feature several new customized courses in QIST as well as a research component. Congratulations to Dr. Dawber and Dr. Wei for this outstanding contribution to our Department!

AMO Wins the First P&A Department Chair's Cup Soccer Tournament!



The inaugural P&A Chair's Cup Soccer Tournament concluded successfully on Wednesday, June 1, 2022. The Championship game was played between the AMO and Condensed Matter teams, and AMO won the Championship in a dramatic fashion by 2-0. Both teams played exceptionally well, and the game was exciting and entertaining to watch. In the 3rd and 4th game, YITP beat Nuclear by 2-1, even though the Nuclear team went all out NUCLEAR! Overall, all the elements of a successful tournament were present,

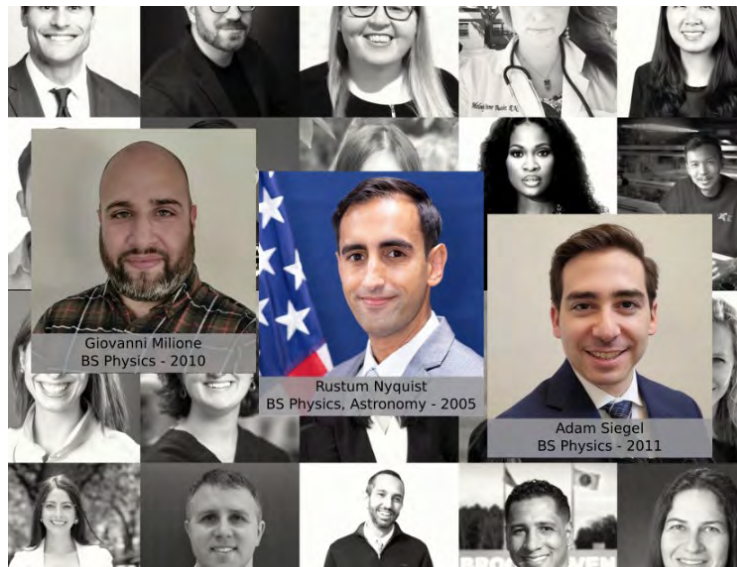
including dramas and controversies! The organizing committee did an excellent job. Even the Soccer Tournament BBQ Social hosted by the losers (HEP) was successful - over 100 people attended! Congratulations to the winners and everyone who participated!

Alumni Highlights

Physics and Astronomy Department Alumni Receive University's 40 Under Forty Award

Giovanni Milione, Rustum Nyquist, and Adam Siegel have been designated as recipients of Stony Brook's 40 Under Forty honorees for 2021.

[Read more](#)



We are glad to have seen so much activity within our halls this year, and look forward for more milestones to come! Please consider investing in our students and faculty and supporting our Department's growth and progress by [making a gift](#) today!

To learn more, contact Amanda Sabanos, AVP for Development, Schools and Colleges, at (631) 316-0371, amanda.sabanos@stonybrook.edu.