Greetings everyone! We are pleased to offer you our newly redesigned newsletter, which we hope you will enjoy.

Our Department has been in flux in the past year, with several arrivals and departures, and many faculty moving to new positions. I am pleased to be the new Department Chair since July 2018, succeeding Prof. Mike Crenshaw (see page 2). Prof. Russel White has stepped up to replace me as the new Graduate Director for Astronomy. In addition, Prof. Murad Sarsour is now our new Graduate Director for Physics, in replacement of Prof. Xiaochun He who did an excellent job before and will now be devoting more time to his nuclear physics research projects. Our faculty have been very active this year, and have been awarded new grants and distinctions (pages 2-3). Most notably, Prof. Megan Connors has been awarded one of the Dean’s Early Career Award by the College of Arts and Science, and Prof. Misty Bentz was awarded the University Outstanding Faculty Achievement Award for 2018 (page 3). In more somber news, Prof. Nicolaus Dietz sadly passed away after a fight with cancer, and he will be much missed (page 4). Other people have left the Department over career aspirations and opportunities including Prof. Rachel Kuzio de Naray, and ten graduate students who all successfully defended their PhD dissertations in 2018 (page 5). They are being replaced with a new cohort of graduate students - twelve new admission in 2018 - and with Prof. Sidong Lei, who joined our Department as a new Assistant Professor in August (page 4). Much is going on in our Department, and we expect a very busy year 2019. Our 31 faculty, 21 research and administrative staff, and 70+ graduate students are all busy contributing to great scientific research and academic advancement. Stay tuned for more news from our newsletter in the future.
Grant & PR news

Academic Highlights

Featured Faculty Profile: Mike Crenshaw

Professor Mike Crenshaw concluded his 6-year plus 1 month term as the Chair of Physics and Astronomy in June 2018. Several members of the faculty have come forward to thank Dr. Crenshaw for steering the Department toward a new era of growth, both in terms of funding and in terms of hiring new faculty. The success of the 2CI astrophysics cluster is especially noteworthy. He is excited to have more time to devote to his research focusing on black hole feeding and feedback in nearby galaxies.

Crenshaw’s current research projects include a survey of the gas and stellar motions in the bulges of 30 active galaxies with the Gemini North 8-m telescope, and a survey using the Hubble Space Telescope and the Apache Point Observatory 3.5m telescope to determine the extent to which outflows powered by black hole accretion can affect the galaxies they live in. Both projects seek to ultimately understand the physical mechanisms by which black holes can regulate star formation in galaxies.

Crenshaw is looking forward to mentoring two graduate students through their dissertation defenses in Summer 2019, and he continues to put good use his administration skills by serving as the Board Chair for the Astrophysics Research Consortium (ARC), of which GSU is a member institution.

Professor Brian Thoms report that GSU was awarded the PhysTIC “5+ Club” Award for 2016-2017 for the graduation of well-qualified physics teachers. About 12 institutions receive this award each year and GSU garnered the award for the third time in four years. Thoms himself was awarded a GSU CETL Faculty Teaching Fellowship for 2018-2019.

Assistant Professor Fabien Baron received a 3-year NSF Astronomy & Astrophysics grant award of $251K to work on “Imaging Convective Patterns On AGB Stars” with the CHARA Array.

Misty Bentz receives Outstanding Faculty Achievement Award

Associate professor Misty Bentz has just been named recipient of the University’s Outstanding Faculty Achievement Award for 2019. This prize is awarded every year by the GSU Office of Faculty Affairs. Professor Bentz was also recently interviewed on NPR’s show “Valerie Jackson In Conversation” to discuss her work on the Hubble telescope, the future of space telescopes after Hubble, and unveil some of the mysteries of supermassive black holes.

Megan Connors joins the Department in Fall 2015 as an assistant professor and RIKEN/Brookhaven Research Center Fellow. She is an experimental nuclear physicist studying the strong force which binds the nucleas together. By recreating the conditions of the early universe, the Relativistic Heavy Ion Collider at Brookhaven National Lab is able to create the quark gluon plasma, a phase of matter in which normally confined sub-atomic particles known as quarks and gluons can behave as free particles.

Dr. Connors probes this QGP with energetic sprays of particles known as jets. She is a PI on an NSF Grant and playing a leading role in the construction of a new experiment, sPHENIX, which will start collecting data in 2023. In addition to her many publications as a member of the PHENIX and ALICE collaborations, she has recently authored an article “Jets in heavy ion collisions” published in Review of Modern Physics. She has recently been recognized with the Dean’s Early Career Award in the College of Arts and Sciences.

The GSU CHARA Array at Mount Wilson, California, continues in its exploration of details of the stars. The Array is now open to scientists across the nation thanks to a grant from the National Science Foundation. The CHARA team is now adding adaptive optics systems that will make the telescopes even more sensitive to fainter targets. GSU alumnae at Mount Wilson in June 2018 to see CHARA and view the stars through the historic 100-inch telescope (see photo above). We had so much fun that we plan to host another event on October 3, 2019.

Please join us then!

Professor Petrus C. Martens was appointed in December to the influential Astronomy & Astrophysics Advisory Committee (AAAC). The AAAC advises the NASA Administrator, the Director of the NSF, the Secretary of Energy and Congressional committees on issues pertinent to astronomy and astrophysics. The 13 members derive from big name universities and top-level national labs. Martens was also member of the Scientific Organizing Committee for the SCOSTEP 14th Quadrennial Solar-Terrestrial Physics Symposium, Toronto, Canada. He also took part in the GSU Faculty Entrepreneurship and Innovation Workshop in May 2018. Martens also was awarded a grant of $14,833 titled “GSU Contributions to Continuing Expansion and Maintenance of the Virtual Solar Observatory (VSO).”
Dietz, who passed away on July 24, 2018 after an extended battle with cancer. Dr. Dietz grew up in Germany and attended the Technical University of Berlin as an undergraduate. He completed his PhD in physics there in 1991 at the Institute of Physics. After working in industrial and academic research for a time, he joined the physics faculty at GSU in 2000. His research interests and expertise spanned a wide area of fundamental materials science and applications. He was a world-recognized authority in the growth of novel optoelectronic compound semiconductors, III-V compounds and birefringent chalcoprite semiconductors. Dr. Dietz’ research made major contributions to agencies including NASA, Air Force Research Office and the U.S. Department of Energy. He employed postdoctoral research at University of California, Los Angeles. Dr. Lei has research interests in developing new low-dimensional material with outstanding optoelectronic and quantum properties. Currently, he is leading a research group (Functional Materials Studio) in our department focusing on low-dimensional materials synthesis and surface quantum states controlling, electronic and optoelectronic device design and characterization, quantum transport study and related topics.

PhD successfully defended in 2018

Justin Cantrell, “Young Stars, Young Planets, and Habitable Zones” Advisor: Russel White

Dilip Chauhan, “Material And Techniques For Extended-Wavelength And Split-Off Band Infrared Detectors” Advisor: A. G. Unil Perera

Katie Gordon, “Fundamental Properties of Q and B Stars with Optical Interferometry” Advisor: Douglas Gies

Tristan Haseler, “b-Quark Production in Proton-Proton Collisions at Center of Mass Energies of 510 GeV in the PHENIX Detector at RHIC” Advisor: Xiaochun He and Murad Sarsoor


Hiroki Makita, “Biaxiality and Anisotropy” Advisor: Steven Manson

Advisors: Douglas Gies

Rasanga Lakruwan Samaraweerasinghe, “Effect of DC-Current and Microwave Excitations on Negative Magnetoresistance in GaAs/AlGaAs 2DES” Advisor: Ramesh G Mani


Seyoun Wolde, “p-type InAs/ GaAs quantum dot, dot-in-well, and low frequency noise properties of infrared photodetectors” Advisor: A. G. Unil Perera

Professor Nikolaus Dietz (1958 - 2018)

We sadly lost one of our long-time colleagues, Dr. Nikolaus Dietz, who passed away on July 24, 2018 after an extended battle with cancer. Dr. Dietz grew up in Germany and attended the Technical University of Berlin as an undergraduate. He completed his PhD in physics there in 1991 at the Institute of Physics. After working in industrial and academic research for a time, he joined the physics faculty at GSU in 2000. His research interests and expertise spanned a wide area of fundamental materials science and applications. He was a world-recognized authority in the growth of novel optoelectronic compound semiconductors, III-V compounds and birefringent chalcoprite semiconductors. Dr. Dietz’ research made major contributions to agencies including NASA, Air Force Research Office and the U.S. Department of Energy. He employed and further developed such important growth methods as molecular beam epitaxy and chemical beam epitaxy, organometallic chemical and high-pressure vapor deposition, real-time optical diagnostics, and characterization of optical materials properties. Dr. Dietz was an active member of a number of professional scientific societies including the American Physical Society, American Vacuum Society, Institute of Electrical and Electronics Engineering, Materials Research Society, Society of Photo-Optical Instrumentation Engineering, and the Minerals, Metals, and Materials Society. He served as a chair of the Electronic Materials and Photonics Division of the American Vacuum Society up to this year.

Dr. Dietz was a committed teacher and his numerous students deeply appreciated his passion and ability. He was a caring and committed mentor to his graduate students, postdoctoral associates, and junior faculty members. As a researcher, the lives and careers of people he published with were as important as the scientific content. He had a strong voice and influence in the activities of the department, college, and university. He was a great friend to many faculty members in the university and he will be greatly missed.

New faculty member: Assistant Professor Sidong Lei

Sidong Lei joined the Department of Physics and Astronomy at GSU in August 2018, as an assistant professor. He graduated from Rice University, Houston, Texas, followed by postdoctoral research at University of California, Los Angeles. Dr. Lei has research interests in developing new low-dimensional material with outstanding optoelectronic and quantum properties. Currently, he is leading a research group (Functional Materials Studio) in our department focusing on low-dimensional materials synthesis and surface quantum states controlling, electronic and optoelectronic device design and characterization, quantum transport study and related topics.

New and Departing Members

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Student activities & Outreach

A stropal organized a meet and greet event to welcome the new astronomy graduate students in Fall 2018. Astropal’s mission is to support graduate students through a friendly peer mentoring system, a proven method that has achieved remarkable success in our Department.

GSA continued its great outreach work in Fall 2018, this time first at Maynard Holbrook Jackson HS, then during the STEM Night at Trip Elementary.

Student org news

Group picture for the Astropal Fall 2018 Meet & Greet.
Endowed Activities

Raghavan Astronomy Student Fellowship

We are excited about a new endowment that will support the salaries of two full-time undergraduate research assistants to work with astronomy faculty mentors each summer! The new fellowships have been incorporated into our Undergraduate Research Program, which has been expanded to include both physics and astronomy in a common application process.

Robert H. Hankla Award for Outstanding Physics Major

Congratulations to undergraduate seniors Michael Nelson and Francisco Martinez, who both were awarded the 2018 Hankla Award for Outstanding Physics Major. Each will receive a certificate and a $1,000 stipend, and we wish them best of luck in their future graduate studies. Endowed since 2014, the Robert H. Hankla award provides support to outstanding senior-level undergraduate students majoring in Physics. It was created to honor Dr. Hankla, who was an Associate Professor of Physics and Astronomy for 30 years at GSU, serving for 10 years as Assistant Dean and Director of Graduate Studies in the College of Arts and Sciences. Dr. Hankla passed away in 1995 while teaching a physics class.

William H. Nelson Fund

Established by Joyce Nelson and family to honor our former department chair and associate dean, this endowment supports our Distinguished Speaker Series, and allows us to invite on campus an outstanding guest speaker. Our most recent lecture was “Einstein, Gravitational Waves, Black Holes and Other Matters”, by Dr. Gabriela Gonzalez of the LIGO Scientific Collaboration, who made headlines for their 2016 discovery of gravitational waves. The lecture was held on September 24, 2018 at GSU’s Speaker’s Auditorium. Stay tuned to our homepage for an announcement on the 2019 William H. Nelson Lecture.

Endowed Activities

Support Physics & Astronomy at GSU

There are many ways to support our department:

- Endow an outstanding graduate student award or set up an undergraduate scholarship.
- Support an undergraduate summer research position in physics, similar to the Raghavan fund for astronomy.
- Establish an endowed chair or professorship to support our frontline collaborative research in astronomy and physics.
- Contribute directly to the general fund of our Department to support faculty, staff, and student professional development, social and outreach activities, and recruitment (go to the GSU Make a Gift site, select “Find My Fund”, and specify Fund ID 02041).

For more information, contact Chad Dillard, Assistant VP for Development at the College Development Office, (404-413-5739, cdillard@gsu.edu), or contact our chair, Dr. Sebastien Lepine (404-413-6020, slepine@phy-astr.gsu.edu). You can also visit our Giving Webpage.