Career Goals Survey

Q1. Mark the three most important factors for your future career satisfaction:

- a. Making money
- b. Helping other people
- c. Having job security
- d. Working with people
- e. Having lots of family time
- f. Having an exciting job
- g. Making use of my talents/abilities

Q2. Mark two areas you are most interested in:

- a. Medicine/Health
- b. Biology
- c. Chemistry
- d. Physics
- e. Astronomy
- f. Engineering
- g. English/Writing
- h. Finance/Business/Consultancy
- i. Administration/Management
- j. Arts/Media
- k. Academia/Education
- l. Technology/Computer Science
- m. Law
Profile Matching Matrix

After completing the Career Goals Survey, find which career profiles best fit your response using the table below. See next page for instructions.

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<th>Q2</th>
<th>PROFILES</th>
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<td>Stacey Benson - Managing Health Scientist</td>
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<td>Allison Porter - Biophysics Technician</td>
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<td>Alice White - Materials Scientist</td>
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<td>Jax Sanders - Professor, Interferometers &amp; Gravitational Waves</td>
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<td>d</td>
<td>Lynett Rock - Physics &amp; Math Professor, Math &amp; Science Division Chair / Instructor</td>
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<td>d</td>
<td>Nadya Mason - Materials Physics Professor</td>
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<td>Kelle Cruz - Astrophysician</td>
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<td>Gabriela Gonzalez - Astrophysicist</td>
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<td>Jessica Barrios - Structural Engineer</td>
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<td>Paul Davis - Applications Engineer</td>
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<td>Sarah Ostrander - Senior Process Engineer</td>
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<td>David Sullivan - Engineer</td>
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<td>Mark Alpert - Magazine Editor</td>
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<td>Kate McAlpine - Freelance Writer/YouTube</td>
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<td>Natalie Wolchover - Senior Writer and Editor at Quanta Magazine</td>
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<td>Deborah Berebichez - Financial Risk Analyst</td>
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<td>Amanda Joy McDonald - Actuary</td>
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<td>Deborah Moore - Environmental Consultant</td>
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<td>Marta Dark McNeese - Laser Science Professor</td>
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<td>Carlane Pittman - Director for Outreach</td>
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<td>Amy Ziegler - Intellectual Property Attorney</td>
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Physicist Career Profiles

Mark Alpert - Magazine Editor
Mark Alpert, a lifelong science geek, majored in astrophysics at Princeton University and wrote his undergraduate thesis on the application of the theory of relativity to Flatland, a hypothetical universe with only two spatial dimensions. (The resulting paper was published in the journal General Relativity and Gravitation and has been cited in more than 100 scholarly articles.) After Princeton, Alpert entered the creative writing program at Columbia University, where he earned an M.F.A. in poetry in 1984. He started his journalism career as a small-town reporter for the Claremont (N.H.) Eagle Times, then moved on to the Montgomery (Ala.) Advertiser. Having lots of family time, Alpert is very close to his wife and two non-robotic teenagers. He's a proud member of Scientific American's softball team, the Big Bangers.

Jessica Barrios - Structural Engineer
Jessica Barrios was inspired to pursue engineering by her father, who is a professional petroleum engineer. “For as long as I can remember, I’ve enjoyed science, problem solving and building structures out of any material available,” she says. Authentic and hardworking, Jessica enjoys tackling the different challenges unique to each project, “challenges that keep you on your toes no matter how much experience you have.” She also likes seeing each project go “from drawings on paper to a tangible structure everyone can see, and seeing it safely used for its purpose.” She was attracted to CE Solutions in 2016 because the growing company allows her to grow, too, within its distinctive culture. Jessica is a self-proclaimed “sports junkie,” whether it’s practicing, watching or simply talking about athletics. She also likes to watch movies, cook, and spend time with family.

Jacqueline Benitez - Distance Learning Educator
Jacqueline (“Jacque”) Benitez loved astronomy as a young girl, but struggled with physics throughout high school and college. Instead of quitting, however, Jacque decided to try one more physics class in college. “It was all about just wanting more knowledge about the world around me and about astronomy,” Jacque says. This time, the physics finally started to click, and Jacque realized the difference that a skilled and dedicated physics educator could make to students learning the subject.

After college, she worked at a coffee shop to pay the bills, then later accepted two part time jobs to teach astronomy and teach students remotely. She turned the latter into a full time position and is now a distance learning education specialist. She spends most of her mornings during the school year facilitating science learning experiences over Zoom - perhaps starting with a class in California, taking a ten minute break, and then connecting with another class in South Carolina. “I can jump from talking about penguins with kindergarteners to talking about asteroids, comets, and meteors in our solar system with fifth graders,” Jacque says. Specifically, using her physics training, she has developed interesting engineering techniques and hands-on experiences for her classroom. Jacque finds her students to be the most exciting part of her job. “For me, it’s all about giving [students] a taste of what it’s like to be a scientist,” she says. She also enjoys hearing and learning from her students’ perspectives.

Stacey Benson - Managing Health Scientist
Stacey Benson worked as a teaching assistant and physics laboratory technician while earning her bachelor’s degree in physics. After her undergraduate work, she directed a physics lab for a five-week summer program and then decided to pursue a Master’s degree in Exercise Physiology. She was then employed at the National Personal Protective Technology Laboratory where she applied her skills in technical writing, data analysis, and computer modeling to improve respirator designs for civilian workers in the U.S. and China. In addition, Dr. Benson’s role also included recruiting hundreds of participants for participation in several research studies.

She went on to complete her doctorate in Environmental Epidemiology and now works as a Health Scientist for a company called Cardno ChemRisk where she provides expert advice to lawyers, specifically around worker exposure to chemicals such as asbestos, diesel exhaust and benzene.
**Deborah Berebichez - Financial Risk Analyst**

Deborah (“Debbie”) Berebichez, while growing up in Mexico City, Mexico, was filled with a natural curiosity about the world and dreamed of being an astronaut. Unfortunately, she grew up in a conservative community that strongly discouraged girls from pursuing careers in science. So, Debbie let go of dreams of science and focused on more socially acceptable pursuits, such as theatre and writing. Debbie continued to work hard in school however and received a scholarship to study philosophy in the US at Brandeis University. Part of her coursework included an intro-level astronomy course, which she immediately fell in love with. She successfully caught up with the needed physics coursework and was able to finish her physics degree before her scholarship ended.

After becoming the first Mexican woman to graduate from Stanford University with a physics Ph.D., and completing two postdoctoral research positions, Debbie decided that she wanted a life outside of academia and research. She took her smarts to Wall Street and became a quantitative risk analyst. Now, as Vice President of Risk Analytics at Morgan Stanley, Debbie uses math models and quantitative analysis, like in statistics, to determine and manage the financial risk of investments. She trains her clients to use these math models, customizing solutions for their needs, creating mathematical models that will assess the risk of investments worth millions.

[aps.org/careers/physicists/profiles/berebichez.cfm](aps.org/careers/physicists/profiles/berebichez.cfm)

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**Alison Binkowski - Health Policy Analyst**

Alison Binkowski has had what many people would consider a “non-traditional” physics career. Her passion always drew her toward international health care issues, and some of her personal experiences helped form her concern. “I thought I wanted to work in... international health,” she says, “but after a summer in Senegal and Mali with the UN where I ended up being hospitalized in Mali for a week, making use of my talents/abilities I became more cognizant of the advantages of working on domestic health issues.” Alison believes that her background in physics and computer science has served her well throughout her work. “Many fields – including international development and health policy – need more people with strong analytic backgrounds.” For this reason, her training was considered an asset by her academic institutions. “My analytic training was noted as a primary reason why I was offered a partial academic scholarship in graduate school, and what helped me stand out from other candidates to get my current job at the [Government Accountability Office].” Alison says that she was drawn to physics because she “was always interested in how the world worked: from why objects fall to what was at the ‘edge’ of the universe. I also found the fact that phenomena could be captured and explained by mathematical formulas elegant, appealing, and even a bit spiritual.”

[careersinphysics.org/physicists/Detail.cfm?id=2855](careersinphysics.org/physicists/Detail.cfm?id=2855)

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**Dianna Cowern - YouTuber**

Dianna Cowern is the creator of the award-winning YouTube channel Physics Girl, an educational series with PBS Digital Studios. She has reached over one million subscribers with 130+ videos on topics like, “How to create a vortex in your pool,” and “Why is the universe flat?” Through Physics Girl, public talks, and private workshops for teachers across the nation, Dianna explains exciting science topics, inspires kids—especially young girls—to pursue an interest in science, and rallies the general public to think critically through the wonder of science. Surprise cameos from Bill Nye, skateboard legend Rodney Mullen, and Anne Wojcicki (23andMe) have helped the channel receive over 78 million views. Before starting Physics Girl, this Hawaii-raised MIT physics alumna completed a post-baccalaureate fellowship in astrophysics at Harvard, then worked as a software engineer at General Electric, and as UCSD’s physics outreach coordinator. Physics Girl has been featured on the Huffington Post, Slate Magazine, Scientific American blogs, and Popular Science.

**Kelle Cruz - Astrophysicist**

Kelle Cruz studies a kind of celestial body called brown dwarfs to better understand planets outside our solar system. She is an assistant professor at Hunter College in New York, where she continues her work on brown dwarfs. Kelle loves the independence that her degree in physics has given her. She gets to pick her activities based on personal choice and interests. She enjoys the freedom of essentially being her own boss and having a lot of free rein in her work. “I decided early on that I never wanted to make money by making other people money and my physics degree has enabled me to accomplish that goal,” she says. She is currently serving on the Board of the American Astronomical Society. Prior to being elected to the Board, she served as the Chair of the Committee on Employment from 2010-2017. She is the founder and Editor-in-Chief of the AstroBetter blog and wiki and is on the Coordination Committee of the Astropy Project where she promotes information-sharing practices among astronomers. She also started ScienceBetter Consulting, a small business dedicated to serving the needs of the scientific community.

[aps.org/careers/physicists/profiles/cruz.cfm](aps.org/careers/physicists/profiles/cruz.cfm)

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**Paul Davis - Applications Engineer**

Paul Davis earned his BS in Physics at Howard University. He is employed through Corning, Inc and works on a team of engineers who support a major customer that uses Corning optical fiber to manufacture fiber optic cable. This industrial job allows him to contribute to the development of important products for the company and their clients. Paul’s advice for students looking to follow on a similar path is to build a network with other students and professionals as “this can open doors.” He also encourages asking lots of questions of this network and the world to stay curious and constantly learning. Paul also suggests that aspiring engineers join technical organizations and to make sure you “don’t stay in a job that isn’t meeting your needs.”

[spsnational.org/career-resources/physicist-profiles/paul-davis](spsnational.org/career-resources/physicist-profiles/paul-davis)

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**Albin Gonzalez - Medical Physicist**

Albin Gonzalez thinks of himself as a “problem solver.” One of the problems Albin solves nearly every day is how to position patients during radiation treatments for the most efficient and least painful access. He also routinely solves difficulties with the technology itself. Albin checks treatment plans and monitors the machines to make sure they’re working properly and that their output is within an acceptable range. Together with doctors, dosimetrists, radiation therapists and nurses, Albin treats around 40 patients per day with extremely high doses of radiation. Physics allows Albin to work in a fast-paced environment that’s constantly adapting to the latest technology. Right now, his department is lucky enough to use “a fantastic treatment planning system that is the latest in the market,” he says. It makes treatment plans much more efficient, which is good news for cancer patients!

[aps.org/careers/physicists/profiles/agonzalez.cfm](aps.org/careers/physicists/profiles/agonzalez.cfm)

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**Gabriela Gonzalez - Astrophysicist**

When asked about her love for physics, Gabriela Gonzalez said, “I was amazed at how we could ‘explain’ the world with physics and we could predict what objects would do. When I found out this also applied to stars and the universe, and that there were unknown phenomena waiting to be discovered, I decided I couldn’t do anything else!” She is currently a professor in the physics and astronomy department at Louisiana State University (LSU). In addition to teaching, she works with the nearby Laser Interferometer Gravitational-Wave Observatory (LIGO) in Livingston, Louisiana.

[aps.org/careers/physicists/profiles/ggonzalez.cfm](aps.org/careers/physicists/profiles/ggonzalez.cfm)
**Physicists Career Profiles**

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**Evelynn Hammonds** - History of Science Professor

Professor Evelynn Hammonds is the Barbara Gutmann Rosenkrantz Professor of the History of Science and Professor of African and African American Studies and current chair of the Department of the History of Science at Harvard University. From 2008–2013 she served as Dean of Harvard College. Professor Hammonds’ areas of research include the histories of science, medicine and public health in the United States; race and gender in science studies; feminist theory and African American history. She has published articles on the history of disease, race and science, African American feminism, African-American women and the epidemic of HIV/ AIDS and analyses of gender and race in science and medicine. Her current work focuses on the intersection of scientific, medical and socio-political concepts of race in the United States. Professor Hammonds earned a Ph.D. in the history of science from Harvard University, a S.M. in physics from the Massachusetts Institute of Technology (MIT), a B.E.E. in electrical engineering from the Georgia Institute of Technology, and a B.S. in physics from Spelman College. In 2010 she was appointed to President Barack Obama’s Board of Advisors on Historically Black Colleges and Universities and in 2014 to the President’s Advisory Committee on Excellence in Higher Education for African Americans. She is currently director of the Project on Race & Gender in Science & Medicine at the Hutchins Center for African and African American Research at Harvard.

[aps.org/careers/physicists/profiles/hammonds.cfm](aps.org/careers/physicists/profiles/hammonds.cfm)

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**Laura Kasian** - Production Technician/Software Engineer

Laura Kasian is a physicist who puts her analytical skills to use in visual effects at Sony Pictures Imageworks in Vancouver, Canada. It may seem an unexpected place to find someone with a Ph.D. in astronomy, but Laura has worked on everything from the gritty Suicide Squad to the animated movie Spider-Man: Into the Spider-Verse. Laura operates behind the scenes to smooth out the many technical elements that go into creating the movies we love. Her unusual career path demonstrates that physics is about learning skills instead of facts. She completed her bachelor’s in physics at the University of Winnipeg, then pursued a graduate degree in astronomy at the University of British Columbia. She overlapped the last year of her doctorate with her first year of law school, earning her Ph.D. in 2012 and her law degree in 2013.


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**Ginger Kerrick** - NASA Flight Director

Ginger Kerrick uses physics every day to quickly change plans to account for weather changes and ensure that the astronauts can safely return home. Her job as a flight director can even be seen as more important than that of an astronaut because of the amount of time and skill that she has to use to think of every single scenario that could occur while the astronauts are in space. Even though Ginger could not become an astronaut, she became one of the key people who plans everything for the astronauts and gives them the instructions on how to complete their tasks. More importantly, her experience and willingness to learn new skills gave her the opportunity to work in space exploration as a NASA flight director. The setbacks that Ginger has experienced have never stopped her from pursuing a career in space exploration.

[aps.org/careers/physicists/profiles/kerrick.cfm](aps.org/careers/physicists/profiles/kerrick.cfm)

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**Yung Tae Kim** - Skateboarding Physicist & Educator

Yung Tae Kim grew up in Atlanta, Georgia, with an early love for skateboarding. Tae describes his dive into physics as a stroke of luck citing a high school math teacher who “even worked with me outside of class so I could study more advanced math...he was a real mentor,” Tae says. In college, Tae stumbled upon a physics class that changed the course of his academic studies, and led him to major in physics. “This [physics] class was special - it was an honors section that only 8 students bothered to sign up for,” Tae says.

After graduating and teaching as a visiting physics professor at several universities in the Chicago area, Tae took his talents and physics know-how to the video game industry, becoming a consultant and controls engineer for two games in the popular Tony Hawk skateboarding game series. Tae provided game developers with the physics behind skating tricks, allowing them to more accurately simulate them in the game. As an engineer, he revamped the game’s new interactive skateboard controller, which players stand on and move to produce on-screen tricks. In his next career move, Tae created an educational web series called “The Physics of Skateboarding with Dr. Tae” targeting skaters to get them to think scientifically about the sport. He also serves on the advisory board for the Puget Sound Community School in Seattle, Washington.

[aps.org/careers/physicists/profiles/kim.cfm](aps.org/careers/physicists/profiles/kim.cfm)
Liz Kruesi - Freelance Science Writer

Liz Kruesi studied physics and astrophysics in college and graduate school, and soon found herself leaving behind mathematical equations to focus instead on the words and stories describing astronomical concepts. As a science journalist, she has been able to explore everything from dark matter and black holes to the outer planets and future telescopes. She loves diving into difficult topics — how did the universe evolve, where do the highest-energy particles come from, and what definitive proof do scientists need to declare life on another planet? She has written dozens of feature articles and hundreds of news stories covering all aspects of astronomical science. She translates complex scientific concepts, discoveries, and their stories into language that not only is understandable to anyone, but also captures the topic's excitement and importance.

Lizkruesi.com/about

December Martin - Senior Project Manager in Biomedical Technology

December Martin was born and raised in the Philippines, and worked diligently in grade school and performed well; however, she had not yet discovered her love for science. December calls her start in physics a “happy accident” — in high school she became enthralled by the energy of physics and the excitement of solving problems. She worked part-time while pursuing an undergraduate degree in the U.S., and found a lot of strength from working with a physics study group. At a networking event during college, she met employees from a startup biotechnology company. A conversation with a scientist from that company landed her an interview, and her first industry job.

Years later, December moved into hardware engineering, where she helped to design and launch a medical device for monitoring HIV/AIDS in resource-limited countries. She loved being able to help people, and she was invigorated by the scientific community. “You’re surrounded by a group of people who are very accepting of integrating difficult concepts... [Scientists and engineers] never say ‘when am I ever going to use this?’... Even if you never use [these concepts] in your career, as long as you’re training yourself to think critically, it’s not a waste of time,” December says. “This mentality is one I love and know I share with people in science.” Outside of work, December is an avid surfer, volunteer, and a member of the speech contest group ‘Toastmasters International.’

aps.org/careers/physicists/profiles/martin.cfm

Nadya Mason – Materials Physics Professor

Nadya Mason says that the best thing about having a degree in physics is that she gets to work in a fun and stimulating profession. She also gets to choose her schedule, focus on research and teaching that appeal to her, and travel and meet interesting people from around the world. Nadya’s main strategy for success is to make sure that she enjoys the work that she does. “Most physics-related jobs involve research and problem-solving, so they’re likely to be interesting and even fun,” she says.

Nadya teaches at the University of Illinois at Urbana-Champaign. Her work focuses on the way electrons behave and interact in “low dimensional” materials such as carbon nanotubes and graphene. These materials are made up of extremely thin layers of carbon, sometimes no thicker than a single carbon atom. This means that a stack of 7 million sheets would be only a millimeter thick! When dimensions are so low, electrons interact in ways that create new phenomena, which Nadya aims to explore. “The research that I do explores the fundamental science that may form the basis of the next generation of technology,” she says. For example, carbon nanotubes might play an important role in the next generation of nano-scale computers, leading to super-powerful quantum computers that could be significantly faster than the computers we use today.

aps.org/careers/physicists/profiles/mason.cfm
**Physicists Career Profiles**

**Kate McAlpine - Freelance Writer**

Kate McAlpine received her bachelor’s degree from Michigan State University, where she was studying both physics and writing. “I planned the science communicator part while still in college, but I didn’t plan rap as an aspect of my career,” says Kate. Having an exciting job is definitely one of the goals she had in mind. Kate is planning on finishing a nuclear physics rap soon, and is also working on a rap about black holes.

“I’m a freelance writer and sometimes rapper, specializing in physics,” says Kate. She adds, “as a science communicator, my job is to explain research. Sometimes it’s documenting the progress of a long-term project, like my current work with the ATLAS e-News, for the ATLAS experiment on CERN’s Large Hadron Collider (LHC). Sometimes it’s reporting about a recent advance, as in the articles for New Scientist magazine.” On her work surrounding the LHC, Kate often faced challenges around defending the value of scientific research or explaining complex scientific concepts to reassure citizens about the safety of large experiments like the LHC.


**Amanda Joy McDonald – Actuary**

Amanda Joy McDonald earned a BS in physics from Southern Nazarene University (SNU, in Bethany, OK) in 1999, where she published a paper in the Journal of Undergraduate Research in Physics. She was elected into Sigma Pi Sigma in the SNU chapter when it was chartered in 1994. Joy began her career as an actuary before graduating by taking the first actuarial exam in November 1988. Then life intervened. Needing lots of family time, she took several years off from Fellowship studies to raise children while still working as an actuary for American Fidelity. In 2006, realizing she was approaching the twentieth anniversary of starting the Fellows program, Joy set a goal to achieve the FSA before that anniversary. That goal was realized a few months early when Joy completed the final requirement in July 2008. Joy concentrated her actuarial studies in Group and Health Insurance.

Joy has remained a highly visible “hidden physicist” throughout her actuarial career. She presents talks to university math clubs and chapters of the Society of Physics Students, describing how a background in physics prepares one well for actuarial studies.

[Link to careersinphysics.org/physicists/Detail.cfm?id=2845]

**Mary Lee McJimsey - High School Physics Teacher**

Mary Lee McJimsey decided to become a teacher while she was an undergraduate physics major at Cal Poly in San Luis Obispo. She was doing physics research at the time and remembers, “everyday I came in and did exactly the same thing.” Mary Lee found herself inspired to pursue a career in teaching – a goal which could provide variety and excitement in her career. This proved to be true. Responding to a question of why she loves teaching, Mary Lee says, “I understand how much this job is doing to change my community. I can help a student choose to go to college, and maybe even become one of the next engineers or physicists who’s going to change the world. Also, every single day is different…I see many teachers, every day, who come to me to have me help them solve a problem. I plan, but I never know what to expect.”

Mary Lee is now the proud mom to two boys, and recently spent a year as elementary science specialist, teaching science to students from grades K–3. She most recently worked as a physics teacher at a small school focused entirely on problem-based learning (PBL). She is temporarily out of the classroom caring for her newest family member but hopes to return to high school teaching soon.

[Link to knowlesteachers.org/bios/mary-lee-mcjimsey]

**Marta Dark McNeese - Laser Science Professor**

Marta Dark McNeese teaches undergraduate students of all levels and backgrounds, from humanities students to physics majors, at Spelman College. “I enjoy interacting with my students most, but I also love having to continually learn new things,” she says. Marta gets ample opportunities to learn new things while she works on her latest research projects. The focus of her research has shifted from knee cartilage to light-emitting materials. Marta’s main project deals with synthesizing molecules that can give off light when they’re hit with light or when voltage is applied. She’s interested in these so-called “electroluminescence properties” and improving them. Marta’s lab is experimenting with adding metals to the molecule of interest, in hopes that this will improve the electroluminescence of the molecule. Her work has applications in light-emitting devices, diodes for displays, and even flexible light-emitting materials.

[Link to aps.org/careers/physicists/profiles/mcneese.cfm]
Jessica Mink - Astronomical Software Developer
Jessica Mink is a positional astronomer and software developer at the Smithsonian Astrophysical Observatory. After getting Bachelor’s and Master’s degrees from MIT, she took some “enforced time off from astronomy due to a lack of jobs,” in her words, and worked in the private sector developing financial software. She then got a job working in a planetary science laboratory at Cornell where she co-discovered the rings of Uranus. When her research group moved back to MIT, she contributed to the discovery of Neptune’s rings and detection of the extent of Pluto’s atmosphere. Moving to SAO, she developed some key softwares for analyzing data from a Space Shuttle Telescope and from ground-based spectrographs. These are used to study everything from exoplanets to Large Scale Structure of the universe! Along the way, she wrote astronomical software packages that are widely-used to work with spatial positions on scales from the solar system to nearby stars to the Milky Way galaxy to the positions of other galaxies in space.

Sarah Ostrander - Senior Process Engineer
Sarah Ostrander's path to her current career might have seemed pretty inevitable from the outside looking in. She put an incredible amount of effort into the things she cared about, and the two most prominent things on that list were her volunteer and professional work as an EMT and her physics and engineering courses. The fusion of the two disciplines was clearly the niche she was meant for, and she has chased her dream to contribute to this arena.

Sarah overcame challenges throughout her college career and continued to offer support to others. She got a job out of college working for a manufacturing company and has worked in the electrical and electronic manufacturing industry since, working on Medical Devices

Deborah Moore - Environmental Consultant
Deborah Moore is an award-winning scientist, advocate, changemaker, mother, and nature lover. While she may not be a household name to you, her work has touched millions of lives and thousands of square miles of nature around the world. She has led winning campaigns across a wide range of issues, from river restoration and Indian water rights agreements in the western U.S. to fighting destructive dams around the world, and from establishing green and healthy school programs that get schools to go solar and kids out in nature to advancing the human rights of indigenous peoples. Throughout her varied career, Deborah has held roles as a research scientist, environmental advocate, non-profit director, educator, foundation consultant, and coalition builder, from small start-ups to large global initiatives. “I am an award-winning changemaker, advocate, scientist, and social entrepreneur for the environment and human rights with experience advancing sustainability, social equity, and youth engagement in the U.S. and internationally. I produce tangible results with lasting value by bringing together people with diverse perspectives to forge broadly supported solutions. My passions are climate change, water, and children - all are fundamental to a healthy future!”

Carlane Pittman - Director for Outreach
Carlane Pittman is responsible for student concerns and student advising at the College of William and Mary. She also coordinates and maintains the outreach efforts of the physics department to recruit and advise students. She enjoys seeing students benefit from my educational programs, and promoting science at the same time. Carlane’s main focus for the past 21 years while at College of William and Mary has been in the area of college student development including classroom and out of classroom experiences. She received her B.S. in physics from Spelman College and then her M.A. in education from Hampton University.
**Physicists Career Profiles**

**Allison Porter - Biophysics Technician**

Allison Porter had always been interested in the sciences, and had showed special interest in becoming a doctor, partially due to her aunt’s fight with ovarian cancer. In high school, she had a physics class that she particularly enjoyed. In the class, she was introduced to astrophysics that allowed students to create a simulated solar system by determining objects masses and velocities. When going through her undergraduate years, she wanted to choose a major that gave some breadth to her education, and her good experience in her high school physics class helped steer her towards astrophysics. “Making use of my talents, I think a lot of it is from just a philosophical standpoint, studying things that are much larger than we can really comprehend, I was very interested in big bang cosmology, the origins of the universe.” After graduating from Harvard, Porter entered the Miss America pageant, representing her state of Washington. She chose the pageant due to its goal to develop well-rounded women, and currently employs her role as Miss Washington to raise awareness of cancer prevention, treatment, and funding. She is currently in the MD Program at the University of Washington. Aside from her work, Allison Porter is helping other people by being involved in a wide range of community support activities. She has spent time in Mexico doing disease education, Calcutta working at a disabled children’s orphanage, and Ecuador as a part of a mobile surgery unit.

[aps.org/careers/physicists/profiles/porter.cfm](aps.org/careers/physicists/profiles/porter.cfm)

**Lynett Rock - Physics & Math Professor, Math & Science Division Chair / Instructor**

Lynett grew up in a rural area of Oklahoma, between the Native American Cherokee and Creek nations. As a high school senior, Lynett wasn’t planning on a career in physics—she thought she’d be an accountant or a math major, but after taking her first university physics class, “it was obvious that this was what I was supposed to do,” Lynett says.

After getting a degree in engineering physics, Lynett continued on to graduate school, where she studied how electrons moved through glass with different properties. The goal of her project was to come up with the perfect glass for use in space shuttles. After getting her Master’s degree in physics, Lynett began teaching high school physics. When a position opened at a junior college in her hometown Lynett took it, and she and her family moved into the house next door to her parents. She now teaches math and physics at the junior college and is the Division Chair of the Math and Science Department.

Lynett enjoys showing students that math and science are not only within their reach, but very enjoyable. Many of her students plan to become teachers, and she likes knowing she’s preparing future teachers to educate students to come. “I believe teaching the next generation has a huge impact on the future,” she says.

[aps.org/careers/physicists/profiles/rock.cfm](aps.org/careers/physicists/profiles/rock.cfm)

**Jax Sanders - Professor, Interferometers & Gravitational Waves**

Jax Sanders was drawn to the notion of teaching and doing research as a professor since middle school. As an undergraduate studying physics and mathematics at Kalamazoo College, Jax became particularly interested in astrophysics. They sought out a summer experience in the field and were accepted to the Laser Interferometer Gravitational-Wave Observatory (LIGO) Summer Undergraduate Research Program (SURF). Jax credits this admission to their experience in theater as a set carpenter and metal worker. Experience in welding and soldering are attractive skills at LIGO!

Physics training involves learning to approach various complex problems, and Jax utilizes this crucial skill to find answers to their research questions. “A lot of [solving a problem] is trying to think laterally but knowing that there really are unifying principles underneath all these weird things that happen.” Jax is currently an Assistant Professor of Physics at Marquette University in Milwaukee, Wisconsin. They are expanding the scope of gravitational wave astronomy by designing subsystems for gravitational wave interferometers while also designing new detectors. Jax also recognizes that, even for professors, physics requires constantly learning new things.

[aps.org/careers/physicists/profiles/sanders.cfm](aps.org/careers/physicists/profiles/sanders.cfm)
Maggie Seeds - Associate Consultant

Maggie Seeds was always a stargazer and wanted to pursue that passion in her undergraduate education. Maggie attended Appalachian State University where astronomy was a concentration available to physics majors. She felt that physics was a natural path of study for her, and found that she enjoyed the mathematical side of physics, working through difficult challenges and finally arriving at the answer to complicated problems. Today, Maggie is a consultant at Clarkston Consulting (N.C.), a management and technology consulting firm which focuses on consumer products and the life sciences industries. As a consultant, Maggie plays many different roles depending on a client’s needs. She says these range “from technical to strategic, across supply chain and business process areas.” The terms “supply chain” and “business process” refer to how raw materials make their way into a finished, marketable product.

Maggie says that one of the reasons she chose this career path was because she enjoyed having to be flexible and having to examine a problem from many different angles. She knew that she wanted to utilize the critical thinking skills she’d learned studying physics, but she also wanted to travel and take on a variety of complex problems. She says that consulting filled all of these needs, since every client is different and has a new, interesting problem.

David Sullivan - Engineer

David Sullivan is involved in many ways at Raytheon. First of all, he is a principal system producibility engineer within the company. He also is very involved with recruiting university students for Raytheon, as well as working with middle and high schools, encouraging in them an interest in math and science. In addition to his various positions within Raytheon, David is an active member of the community. He is a member of the Decision Making Committee for the Townview Science and Engineering Magnet High School. David is an active member of his church, Friendship West Baptist, where he has been involved with the men’s ministry and college groups. He has also been a coach for little league football. David’s position requires his expertise in education, research, management, and government. His job utilizes his skills in complex problem solving, synthesizing information, knowledge of physics principles, communication, and teamwork.

Urszula Tajchman - Pediatric Cardiologist

In her job, Urszula Tajchman treats children with heart disease, as well as conducts research in molecular biology. Urszula received her medical training at the Johns Hopkins University. She then did her residency in pediatrics at the University of Colorado, and a fellowship in pediatric cardiology at the University of Iowa. She worked as a pediatric cardiologist at the University of South Dakota before becoming the first pediatric cardiologist in Central Oregon in 2002. Urszula is board certified in pediatrics and pediatric cardiology. She says that the best things about her job are caring for patients, teaching children and parents about their health, and studying therapies for disease.

Cortney Weinbaum - Senior Management Scientist

Cortney Weinbaum was studying physics in college and wasn’t sure what to do after. She reached out to her university’s alumni network in Washington and asked, “What can I do?” Her mentors said, “You have a physics degree? Send in a resume.” Her summer internship with the Defense Intelligence Agency led to a job after college as an intelligence officer, designing advanced sensors for intelligence gathering.

She now conducts research and analysis on intelligence and cyber programs in the U.S. government to advise federal agencies how to improve their strategies, policies, and operations. Her research has helped the intelligence community improve its data collection and analysis and identify emerging technologies and their impact on operations. She’s written that “as long as society has achieved technology advancements, people have sought ways to weaponize or militarize them. Democratic societies can make decisions that are representative of their citizens’ values and stand up to public scrutiny.”

As a woman with a physics degree, she works to be a mentor to younger students and recommends that students find a good role model. She says “you might not know any in your community, but there are people like you—whatever ‘like you’ means—who are doing really interesting science, and you should pursue it if you love it.

www.rand.org/about/people/w/weinbaum_cortney.html#overview
**Physicists Career Profiles**

**Amy Ziegler** - Intellectual Property Attorney

Amy Ziegler's interest in physics bloomed in high school as a result of an excellent physics teacher's efforts and participation in science fairs. After earning her Bachelor's degree, Amy did not feel ready to jump into graduate work. Instead, she began working at Argonne National Laboratory as a Particle Accelerator Operator. Her role involved keeping the beamline running and quickly solving any problems that arose to salvage research scientists' limited beam time.

As Amy weighed her long-term career options, she wanted a career with autonomy and variety, so decided to attend law school and became a patent attorney. She says that even though she "just sort of fell into that" job, it ended up being "a very lucrative, good job for people with a science and engineering background who go to law school." In this position, Amy worked with a variety of inventors to write their patent applications. Amy found the discipline and logical thinking skills learned through her physics background to be especially helpful when researching these highly specialized inventions. Amy then switched from working in patents to trademarks, a different branch of intellectual property law that deals with branding, counterfeiting, and marketing issues. She enjoys the fast pace and variety of issues covered. Amy also appreciates being able to incorporate technology into her firm's practice. "I like what I do, I like the legal work, but I also like applying technology to try to make our processes better and more efficient."

[aps.org/careers/physicists/profiles/ziegler.cfm](http://aps.org/careers/physicists/profiles/ziegler.cfm)

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**Natalie Wolchover** - Senior Writer and Editor at Quanta Magazine

Natalie Wolchover grew up splitting her time between England and Texas where each of her parents lived. She always wanted to be a scientist, but she became interested in physics in particular at age thirteen when she read Stephen Hawking's *A Brief History of Time*. She decided to become a physicist and went on to study physics in college.

After graduating, Natalie planned to go to graduate school, but she was feeling burnt out from her intense undergraduate experience. She decided to take a break from school; for a year, she lived in a tent and worked on an organic farm in Texas. She found the time to be very rewarding. "[The gap year gave] me some much-needed perspective, and it was also very nice to be able to concentrate on studying for the exams and work on my applications and really think about what I wanted in grad school," Natalie says. Natalie went to graduate school for physics, but left during the first year to pursue physics writing. She has written for Popular Science, Seed, LiveScience, Make magazine and other publications. Now she is the Senior Writer and Editor at Quanta Magazine, and interviews physicists involved in LIGO and other major initiatives in physics. Some advice she offers to new science writers is to "Be bold, and to ask scientists for interviews even when they seem busy. They'll end up getting as much out of it as you do."


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**Alice White** - Materials Scientist

Alice White first got into science in high school and went on to study chemistry at Middlebury College, a small liberal arts school in Vermont. Alice loved Middlebury's close-knit and supportive science department and one semester took an organic chemistry and physics course at the same time. She found she didn't like the messiness of her chemistry lab, but loved all the math used in physics. The experience led her to change her major and complete her degree in physics.

Alice is now a research scientist and works at the Boston University Department of Mechanical Engineering as Chair. Her technical background focuses on experimental solid-state physics and fabrication of optical components. She's received many awards and fellowships for her work, which has led to over 125 publications and 7 patents. She had a lot of support from her family and has had good mentors in her career. She strives to give back through mentorship, and outreach such as talks and physics demonstrations at local elementary schools. She says, "I really benefited...and it's something that I'm happy to give back."

[aps.org/careers/physicists/profiles/white.cfm](http://aps.org/careers/physicists/profiles/white.cfm)