National Aeronautics and Space Administration

Women in the High-Energy Universe

The "Women in the High-Energy Universe" project highlights and promotes the many important ways that women contribute to the pursuit of understanding the Universe through high-energy astrophysics. We've asked various women connected with NASA's Chandra X-ray Observatory to tell us—in their own words—about their experiences and perspectives of their careers.

Cady Coleman
NASA Astronaut

Astronaut who helped launch Chandra into space in 1999 and since spent about 180 days aboard the International Space Station.

It wasn't until I went to college and Sally Ride came to talk [when I became interested in being an astronaut], if she could do it then I could aspire to do it too. She was well educated and smart, and at the same time she had this job that had adventure. For me, being part of the team that launched it, I just actually feel really, really lucky to be part of something that takes us places that we couldn't have gone if Chandra hadn't launched.

Aneta Siemiginowska
Astrophysicist

Astrophysicist in Chandra's Science Data System group who also conducts research into black holes and galaxies.

For as long as I can remember, I wanted to learn about stars. The winter sky displayed the entire Universe right in front of me and I wanted to learn and understand the sky and the space. I do not think I understood what it meant to become an astronomer when I was a six year old, but each time somebody asked me what do I want to be when I grew up I answered, "I want to be an astronomer."

Belinda Wilkes
Chandra X-ray Center Director

Director of Chandra X-ray Center & astrophysicist who specializes in the study of supermassive black holes in the centers of galaxies.

My advice to anyone who might be interested in pursuing a career similar to mine is this: follow your heart and your abilities rather than a specific career path. Plan the next step(s) along the way, but be flexible—there is always more than one way to get there. Be pro-active. Make sure you are working with good people, but make sure you also like them! If you are not happy, you will not do well.

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Giuseppina Fabbiano
Astrophysicist

Senior astrophysicist studying galaxies, black holes and the high-energy Universe using Chandra and other telescopes.

I studied physics because I wanted a chance of discovering something new. My mother would have preferred that I studied classics like Latin and Greek, and a favorite uncle [said] perhaps I should look at something more practical. But physics it was. After all these years, I am still working in X-ray astronomy, and having fun with it.

Karla Guardado
Astrophysicist Technical Assistant

Chandra X-ray Center with a B.S. in Physics from MIT, 2015

I wanted to go into a career in astrophysics because I fell in love with space—its marvels and secrets. I loved every part of my science projects, the investigation, experimentation, and drawing conclusions. If I were to give advice to young girls thinking about a career in science, it would be that a career in science takes a lot of dedication and years of schooling. But if it's truly what you want to do, go for it. It will be worth it. Set your own limits, don't let other people do that for you.

Kimberly Arcand
Science Visualization

Visualization lead for Chandra, which includes oversight of a range of science communications products and activities.

Growing up, I was the kid with the chemistry set, the microscope, and the stellarium as my favorite "toys." I loved science, or what I thought of as science: the idea of discovering something new, of figuring out puzzles, of contributing to people's lives in some significant way. Today, I use data to tell stories about science, whether in the form of a 3D model of an exploded star, or a tweet.

Saeqa Dil Vrtilek
Astrophysicist

Senior astrophysicist who studies cosmic objects with Chandra and other telescopes while being involved with science education.

I have always enjoyed things related to science. I liked to take things apart and find out how they work —I was always the one fixing radios, vacuum cleaners, etc., around our house. Math was also my favorite subject in school. I try to study objects by looking at all their forms of radiation from visible light to gamma-rays.

Janet DePonte Evans
Software Development Manager

Software Development Manager for the Chandra X-ray Center Data System (CXCDS) group, which provides end-to-end scientific software for Chandra's mission operations.

My interest in astronomy came when looking for a career that combined software development, science and math. I enjoy contributing to [Chandra] knowledge through the software systems that we provide. Any young person seeking a challenging and rewarding career should definitely give astronomy and software engineering a hard look.

Read the full interviews of these women and many others at http://chandra.si.edu/blog/women

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Shortly after midnight on July 23, 1999, the Space Shuttle Columbia blasted off from the launch pad at the Kennedy Space Center in Florida. The mission, named STS-93, had several purposes to achieve and scientific experiments to perform.

The primary objective of the STS-93 mission was to deploy NASA's Chandra X-ray Observatory, the largest payload ever to fly aboard a Space Shuttle. Chandra was also the most sophisticated telescope ever built to study the Universe in X-ray light.

But there was additional significance for this mission. At the helm of Shuttle Columbia was Commander Eileen Collins, the first woman ever to lead a Space Shuttle flight. The lead mission specialist, the person responsible for actually deploying the giant Chandra spacecraft, was Cady Coleman. Just seven hours after Collins navigated the Space Shuttle Columbia safely into Earth orbit, Coleman successfully maneuvered Chandra out of the payload bay and into space.

Eileen M. Collins

For Eileen Collins, her journey toward the skies and beyond started in the public library of her hometown Elmira, NY. As a young child and teenager, Eileen consumed books about flying, drawn to the airplanes and missions themselves as well as the engineering of aviation. When Eileen was nine years old, she read an article in Junior Scholastic magazine that profiled the Gemini program and its astronauts.

"I stumbled into the space program by reading magazines, and the flying part by reading books," said Collins.

After attending a community college, she then moved on to Syracuse University. To help pay for her schooling, Collins joined the Air Force Reserve Office Training Corp (ROTC), but, at that time, women were not allowed to be pilots. Fortuitously, that changed in 1976 while Collins was still working on her undergraduate degree in math and economics. This meant that after graduation, Collins could go directly from Syracuse to pilot training.

After spending over a decade at the Air Force, Collins applied and was accepted to NASA. In 1990, Collins was named a member of the astronaut corps. Three years after becoming an astronaut, Collins became the first female pilot of the Space Shuttle when she flew Discovery on a mission that included a rendezvous with the Russian space station Mir. After piloting another Space Shuttle mission in 1997, Collins was selected to be the commander of STS-93, the first time a woman would ever lead a mission into space.

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Cady Coleman

As an undergraduate at the Massachusetts Institute of Technology, Cady Coleman attended a lecture by Sally Ride, the first woman in space. Listening to Ride and being able to shake her hand after the lecture left Coleman with a broader idea of who could be an astronaut.

"When I thought about what astronauts looked like, I had in my mind a picture of the Mercury 7 standing in front of an airplane and they were all a bunch of old guys with no hair," said Coleman. "And it certainly didn't say to me, this could be you."

"It wasn't until I went to college and Sally Ride came to talk, it just opened up that possibility of if she could do it then I could aspire to do it too," said Coleman. "I remember thinking that it counted that she was well educated and smart, and at the same time she had this job that had adventure and some thrills to it."

After MIT, Coleman went on to graduate school at UMass Amherst to study chemistry. Another critical encounter for Coleman occurred after graduate school when she was in the Air Force applying for the astronaut program. She was participating in a science day for the community, and Kathy Sullivan, a crewmember of three Space Shuttle missions and the first American woman to walk in space, was the main speaker. Sullivan spent more than an hour speaking with Coleman, who discussed the application process, and gave her advice.

STS-93 Crew
Coleman joined the NASA astronaut corps in 1992. She flew her first mission into space in 1995 as a member of the STS-73 crew that included experiments on biotechnology, combustion science, and the physics of fluid. On just her second flight, Coleman was selected to be the mission specialist on STS-93 in 1999 that deployed Chandra out of the Shuttle's payload bay using its robotic arm.

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