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A Journey Through the Career of Astrophysics

Excitement and frustration are two elements that Iowa State University astronomy professor LeeAnne Willson enjoys when researching particular areas of her field of study. She said, "It is fun to work away at a problem until you solve it. [Also] it is very exciting to figure out something that no one else has figured out."

Willson's interest in the astronomy field began at a young age when her grandmother gave her a book involving space. She grew up in the space age, which has guided her into a career that has given her a chance to teach, research, and understand what is going on in the world. In today's world, Willson said, "It is a revolutionary and tremendous time to be in astronomy." She explained further that this is because there is a lot to be involved with and because of the overlap between cosmology and astronomy, which are the effects on the Earth as a result of the changing atmosphere.

Currently, Willson is studying how stars change and the mechanisms and implications that are caused by mass loss. She explained that, "The sun is in a very stable state right now where it changes very slowly but eventually, it will use up all its fuel in its core, where it will become bigger and bigger, and redder and redder. At the very end of the red giant stage, it [the sun] loses matter back into space. The mass of the sun ends up with 55 or 60% in the end." Her research is being compiled into a conference paper that argues the formation of prescriptions for star masses. Willson explained this process by saying that the star is kicking off mass in hiccups.

Also, Willson is in the writing stage of completing a textbook titled, *Essential Physics of Stellar Planetary Atmospheres*. The textbook is directed toward collegiate upperclassmen, dealing with radiation, fluid dynamics of plasma physics, and the process of gas condensation droplets condensing flows of wind multiple dynamics. The book has been in the writing process for several years and Willson is speculating the book's publishing deadline to be Christmas 2007.

Willson began her career after completing her bachelor and PhD degrees in physics and astronomy at Harvard University and the University of Michigan, respectively. She has been employed by Iowa State University since 1973 as a professor of astronomy. Over the years, Willson has served on committees that include NASA and the International Ultraviolet Explorer (IUE) Satellite. Willson's commitment to these committees have given her the opportunity to attend meetings in the US and Europe that included the European Space Agency and the British Research Council and to have privileged involvement within these committees. Within this career, Willson enjoys the new challenges and flexibility that allow her to study what she finds interesting at the moment.

An alternative to this career could have involved math because of extensive credits that Willson took in college. Another career choice that Willson might have considered was architecture because of its math and design usage. Her interest in design has been lifelong. She said that in college, art courses provided variety alongside her academic studies. Willson has been involved with the Octagon Center for the Arts and Creative Arts Studio for Artists (CASA), both located in Ames, Iowa. Her creative interests include dyeing fabric, ceramics, painting, and origami.

Willson's future career opportunities are open to new possibilities. She said, "I'm in the process of trying to decide what I want to be when I grow up." Her options may involve taking an active role in astronomy, or writing a science fiction book, her so-called "insomnia project." Wherever Willson's career takes her in the future, she will manage to incorporate one of her pursuits, whether it involves astronomy or art, or she may fuse the two different interests into a common pursuit.

Willson, Leanne. Personal interview. 21 Feb. 2007.