

Sandra Moore Faber
Biographical Sketch
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Sandra Faber is University Professor at the University of California, Santa Cruz, and a staff member of the UCO/Lick Observatory. She is an observational astronomer with research interests in cosmology and galaxy formation. Some of her major discoveries include the first structural scaling law for galaxies (called the Faber-Jackson relation), large-scale flow perturbations in the expansion of the Universe caused by superclusters of galaxies, and black holes at the centers of galaxies. In 1984, she and three colleagues from UCSC and Cambridge University presented the first detailed treatment of galaxy formation based on “cold dark matter,” which has since become the standard paradigm for galaxy and cluster formation in the Universe.

Faber was one of three astronomers who diagnosed the optical flaw in the Hubble Space Telescope, and she played a major role in its repair. She established the scientific case for the twin Keck 10 m telescopes, which inspired a subsequent wave of giant optical telescope building all over the world. From 1994-2005 she was Principal Investigator of the DEIMOS spectrograph, a large optical multi-object spectrograph for the Keck 2 telescope that is the most powerful instrument of its kind in the world. She and colleagues used DEIMOS to conduct the DEEP redshift survey of the distant Universe, which collected spectra of 50,000 distant galaxies and exploited the immense power of Keck to see and study galaxy formation 10 billion years back in time. She now leads the CANDELS project, the largest project in the history of the Hubble Space Telescope, to extend our view of galaxy formation back nearly to the Big Bang. She has co-authored nearly 250 scientific papers, and her work has been cited over 42,000 times.

Faber received her BA degree in Physics from Swarthmore College and her PhD in Astronomy from Harvard. She is a member of the U.S. National Academy of Sciences, the American Academy of Arts and Sciences, and the American Philosophical Society. She serves on the boards of several organizations including the Carnegie Institution of Washington, Annual Reviews, and (formerly) the Harvard Board of Overseers. She has received the Heinemann Prize of the American Astronomical Society, the Antoinette de Vaucouleurs Medal of the University of Texas, the Centennial Medal of the Graduate School of Arts and Sciences of Harvard University, and five honorary degrees.

In 2009, Faber was awarded the Bower Award and Prize for Achievement in Science from the Franklin Institute in Philadelphia, and in 2012 she received the Bruce Medal of the Astronomical Society of the Pacific and the Russell Prize of the American Astronomical Society, both for lifetime scientific achievement. She received the National Medal of Science from President Obama in February 2013.