

Professor Sandra Moore Faber: 2020 Gold Medal in Astronomy

Longer Citation

Professor Sandra Moore Faber is one of the leaders world-wide in the study of galaxies, with an enduring legacy of contributions across a wide range of topics in galaxy structure, galaxy evolution and cosmology.

In 1976 she discovered, with Robert Jackson, a relation (known as the Faber-Jackson relation) between the central velocity dispersion of stars in elliptical galaxies and the mass of the galaxy.

In 1979 she wrote an influential review article with John S. Gallagher that is widely regarded as a turning point in the debate about the importance of dark matter in the Universe.

Professor Faber was an early pioneer (together with Blumenthal, Primack and Rees) in developing a model of galaxy formation based on cold dark matter, which now underpins our current understanding of galaxy and cluster formation.

She has played important roles in a remarkable number of collaborative programmes that have led to further breakthroughs, including the discovery of a mass concentration responsible for large-scale flows in the nearby universe (the 'Great Attractor'). With Douglas Richstone, she led the team that used the Hubble Space Telescope (HST) to identify a correlation between black hole mass and the velocity dispersion of stars in the host galaxy bulge.

Professor Faber contributed to the optical design of the Keck Telescopes and led the construction of the multi-object DEIMOS spectrograph for the Keck.—She and Jon Holtzman played a major role in diagnosing Hubble's optical flaw and executing the subsequent repair. With Henry Ferguson, she led the CANDELS deep imaging survey of distant galaxies with HST, the largest project in the history of the mission.

For an extraordinarily rich set of contributions to our understanding of galaxy formation, galaxy evolution, and dark matter over the past five decades, along with her leadership in developing new facilities for astronomy, the Gold Medal is awarded to Professor Sandra Moore Faber.

Short citation

Professor Sandra Moore Faber receives the Gold Medal in Astronomy in recognition of her outstanding research on the formation, structure and evolution of galaxies, and for her contributions to the optical design of the Keck Telescopes and other novel astronomical instruments.