

Stellar Population Evolution in Early-Type Galaxies
Jennifer Holt

University of California, Santa Cruz
Faculty Advisor: Sandra Faber
Research Supervisor: Christopher Willmer
Home Institution: University of California, Santa Cruz

Galaxies are complex systems that contain stars and gas. The easiest galaxies to model are early-type galaxies, which have elliptical shapes, smooth images, and are gas-poor. In this project, high-resolution images of galaxies taken with the Hubble Space telescope are used to estimate how much early-type galaxies have changed in the last 7 billion years. This corresponds to the last half of the age of the Universe. As one looks back in space and time, the stellar populations of galaxies should be younger and should contain more short-lived, luminous stars that have since disappeared. The total amount of light emitted by an object over its area is called "the surface brightness," a quantity that for galaxies is independent of the distance but evolves with time. Surface brightness for a small sample of early-type galaxies will be measured, and the expectation is that in the past, the surface brightness were higher than at present.