

June 11, 2019

The Honorable Eddie Bernice Johnson
2306 Rayburn Office Building
Washington, DC 20515

The Honorable Jenniffer González-Colón
1609 Longworth House Office Building
Washington, DC 20515

Dear Chairwoman Johnson and Congresswoman González-Colón,

On behalf of the American Astronomical Society, I write in enthusiastic support of the Vera C. Rubin Survey Telescope Designation Act as introduced.

As the text of the bill notes, in her early career as a student and young professor Dr. Rubin studied how galaxies cluster and how galaxies move inside of clusters of galaxies. In 1970, she published measurements of stars at the edge of the nearby Andromeda Galaxy, showing that they were moving too fast to be gravitationally bound to the Galaxy if the only matter binding it was the matter we can see (in the form of stars). She is best known for her careful measurements of the motion of gas inside of galaxies. These measurements enabled her and her collaborators to infer that the amount of matter inside those orbits exceeded the amount of matter in stars and gas. These observations provided some of the first direct evidence of the existence of dark matter inside of galaxies. Later observations of clusters of galaxies and of the cosmic microwave background confirm that dark matter exists in even larger structures, and it appears to outweigh the stars and the gas in the universe by about a factor of 7. We still don't know exactly what dark matter is made out of, but Dr. Rubin's discoveries transformed our thinking about the universe and its contents. In 1993, she was awarded the National Medal of Science.

Dr. Rubin faced many barriers in her career because she was a woman. As a scientific staff member of the Carnegie Institution, she had institutional access to the then-premier facilities on Mount Palomar in California. But she was denied access to the Observatory, with the excuse that there were limited bathroom facilities. But she persisted, and in 1965 she was finally allowed to observe at Palomar. She was the first woman to be officially allowed to do so. (She was preceded by Dr. Margaret Burbidge, who gained access under the name of her theorist husband.) Dr. Rubin carried on as an advocate for the equal treatment of women in science and helped many other women in their careers as astronomers.

The Large Synoptic Survey Telescope, funded primarily by the National Science Foundation and the Department of Energy, will carry on her legacy and her work to study the nature of dark energy and dark matter and map out the structure of the universe as traced by billions of galaxies.

As a woman astronomer working in the field of cosmology and galaxy studies, Vera has always been a personal hero of mine. I can't think of a more appropriate tribute to her memory and her incredible contributions to science, astronomy, and future astronomers than this honor. As you may know, the introduction of this bill is particularly timely given the symposium to honor her life and work taking place at Georgetown University later this month.

Sincerely,



Megan Donahue, PhD
President