

Dr. Sahu is an astronomer at the Space Telescope Science Institute. His research efforts have focused on applying microlensing, transit, and relativistic deflection techniques to detect and study exoplanets, nearby stars and black holes. He currently leads two HST projects to detect isolated, stellar-mass black holes and determine their masses through gravitational lensing.

Dr. Sahu recently reported the first unambiguous detection and mass measurement of an isolated stellar-mass black hole (Sahu et al. 2025; 2022).

Dr. Sahu's early work showed that the microlensing events detected towards the Magellanic Clouds are mainly caused by the stars within the Magellanic Clouds, and not by MACHOs (Sahu, 1994, *Nature*, 370, 275). He then cofounded the PLANET (Probing Lensing Anomalies NETwork) collaboration, to detect planets around the lensing stars through frequent monitoring of microlensing events. This project has led to the discovery of several exoplanets, including terrestrial planets beyond the snow line.

Dr. Sahu led a program of HST observations which showed, for the first time, that a Gamma-Ray Burst (GRB 970228) was associated with an external galaxy (Sahu et al. 1997, *Nature*, 387, 479).

Dr. Sahu led a large HST program called SWEEPS (Sagittarius Window Eclipsing Extrasolar Planet Search) which led to the discovery of 16 transiting planet candidates in the Galactic bulge; these planet candidates remain the farthest planets detected to date (Sahu et al. 2006, *Nature*, 443, 1038).

Dr. Sahu led the first ever measurement of relativistic deflection caused by a star outside the solar system, as predicted by Einstein just over a century ago, and measured the mass of the nearby white dwarf Stein 2051 B--- the first mass measurement through this technique (Sahu et al. 2017, *Science* 356, 1046). This work was listed by Discover magazine as one of the "Top 100 Science Stories" of 2017.

Dr. Sahu has over 370 scientific publications, including 9 in *Nature* and one in *Science*. His work has received extensive coverage in national news media (including *The Washington Post*, *New York Times*, *LA Times* and *National Geographic*), as well as international press (such as *The Economist*, *Times of India*, *New Scientist*, *De Volkskrant*, *El Mercurio*, etc.).

**Science Interests:**

- Determining masses of nearby stars through relativistic deflections
- Detecting and measuring the masses of isolated, stellar-mass black holes through astrometric microlensing
- Detection and study of Exoplanets through transits and microlensing
- Study of the different stellar populations of the Galactic bulge

**Research Topics:** Exoplanets; Gravitational Microlensing; Stellar Remnants

**Professional Websites:** [www.stsci.edu/~ksahu](http://www.stsci.edu/~ksahu)