

## **Kailash Chandra Sahu**

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**Current Position:** Associate Astronomer (with tenure), NIRCam/JWST Instrument Scientist

### **Education**

- B.Sc. (Hons. in Physics): 1975, Berhampur Univ. (1st Class Hons. with Distinction)
- M.Sc. (Physics): 1977, Berhampur University (1st position in the University)
- Ph.D. (Astronomy): 1985, Physical Research Laboratory, Gujarat University, India

### **Employment History**

- 1985 – 1987: Post-doc at Institut d’Astrophysique, Paris, France
- 1987 – 1992: Post-doc at Kapteyn Laboratory, Groningen, The Netherlands (including a one and half year term as support astronomer at La Palma Observatory)
- 1992 – 1994: Support Astronomer at Instituto Astrofisica de Canarias/Teide Observatory, Tenerife, Spain
- 1994 – 1995: Associate at European Southern Observatory, Munich, Germany
- 1995 – present: Staff Astronomer at STScI (current position: Associate Astronomer with tenure, NIRCam/JWST Instrument Scientist)

### **Academic Memberships**

- Member - International Society of Optical Engineering
- Member - Commission 34 of International Astronomical Union
- Member - American Astronomical Society
- Member - American Association for the Advancement of Science

### **Awards**

- GOLD MEDAL for highest rank in the University in M.Sc.(Physics)
- STScI science-merit award in 2000
- STScI science-merit award in 2001

### **Current Research Interests**

- Search for extra-solar planets through transits and microlensing
- Gravitational microlensing and implications on dark matter
- Study of stellar structure through monitoring of microlensing events
- Study of Planetary Nebulae
- Gamma-Ray Bursts.

### **Publications:**

- 211 scientific publications which include:
  - 85 in refereed journals (including 8 in *Nature*)
  - 2 edited books
  - 6 invited reviews
  - 1 STIS Instrument Handbook (v3.0)
  - 17 HST-related Instrument Science Reports/Technical Instrument Reports.

## **Teaching and Mentorship Activities**

- Supervision of several graduate students and post-doctoral fellows at Johns Hopkins Univ. and STScI.
- Supervision of 5 summer students at STScI.
- Supervision and mentoring of several science data analysts in science and HST-related projects at STScI.
- Supervision of four graduate students at Kapteyn Laboratory, Groningen.

## **List of research grants currently held**

- HST GO Large Program 9750, PI: K.C. Sahu, “The Galactic Bulge Deep Field: A Planetary Transit Survey and Very Deep Stellar Mass Function”, 105 orbits, \$354,000
- HST General Observer Program 9751, PI: K.C. Sahu, “Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing”, 20 orbits, \$142,000

## **Science-related Service Activities**

- Organized STARS/ISM/IGM Journal club at STScI for  $\sim 7$  years (1998-2005).
- Co-founded and organized PLANET Collaboration activities, including many observing programs.
- Served as the external examiner for several Ph.D. theses, from US, New Zealand and the Netherlands
- Participated in organizing the Antarctica Session for the AAS meeting, where I also presented a talk.
- Served in the organizing committee for several International symposia, including the STScI May symposia in 2001, 2003, and 2005
- Organized the “Monday Lunch” talks at Kapteyn Laboratory, Groningen, for one year.
- Worked as a “Support Astronomer” at La Palma Observatory for one and a half years (1988-90).
- Worked as a “Support Astronomer” at Teide Observatory (Tenerife) for one and a half years (1992-94).
- Refereed more than 4 dozen papers for ApJ, A&A, AJ and Nature.
- Served on several NASA Proposal Review processes.
- Reviewed 3 books on Astronomy.
- Served as “Panel Support Scientist” for HST phase-I proposal reviews in 2 cycles.
- Served as a project scientist for the proposed discovery class mission MPF (Microlensing Planet Finder).

## **A Few Selected Recent Colloquia and Invited Talks**

- “Worlds in Transit” SAAO, July 2008
- “Worlds in Transit” Univ. Arizona, March 2008
- “Ultra-short-period planets” JHU, Sept 21, 2006.
- “Discovery of the most earth-like planet through microlensing”, Goddard Space Flight Center, ‘Exoplanets’ seminar series, October, 2005.
- “Discovery of a 5.5 Earth-mass planet through microlensing”, Milkyway & Cookies journal club, STScI, Sep 2005
- “Search for Planets around Stars towards the Galactic Bulge Using HST”, Ringberg workshop on Planet Formation 2004, held at Ringberg in Dec, 2004.

- “Search for Planets around Stars towards the Galactic Bulge Using HST”, Summer school on “Extra-solar Planets”, held at Univ. Catolica, Chile, in Dec. 2003.
- “Search for Dark Matter and Extra-Solar Planets” Yale Univ. October, 2003
- “Effects of Microlensing on Transit Observations”, Eddington Workshop, Palermo, Italy, Sep 2003.
- “A Kaleidoscopic View through Gravity’s Lenses”, June 2002, Kapteyn Laboratory, Groningen, The Netherlands
- “A Kaleidoscopic View through Gravity’s Microlenses”, June 2002, Strasbourg Observatory, France
- “Search for Dark Matter and Extra-Solar Planets through Gravitational Microlensing”, U. de Chile, Aug 2002
- “Search for Dark Matter and Extra-Solar Planets through Gravitational Microlensing” CITA, Toronto, Canada, Dec 16, 2001.
- “Search for Dark Matter and Extra-Solar Planets through Gravitational Microlensing” Univ. of Nagoya, Japan, Nov. 27, 2001
- “Gravitational Microlensing” Open-Night Talk, STScI, October, 2001
- “MACHOs: A Different View”, STScI Symp. on Dark Matter and Dark Energy, April 2001.
- “Search for Extra-Solar Planets Through Gravitational Microlensing” The Catholic Univ. of America, Feb. 16, 2000.
- “Search for Extra-Solar Planets Through Gravitational Microlensing” July 4, 2000, ESO, Germany.

### **Selected Recent Observing Runs with Ground-based Telescopes**

Co-founded the PLANET collaboration, where we conduct continuous, 24-hour monitoring of microlensing events using 4 different telescopes at appropriately spaced longitudes. Since 1995, we typically observe for about 3 continuous months during the “bulge-season” to look for extra-solar planets.

- Sutherland Observatory, 2 weeks in July, 2006 at the 1m telescope, “PLANET program”
- ESO Very large Telescope, 4 nights in June, 2004 at the 8m telescope, “Radial Velocity observations of SWEEPS Exoplanet Candidates”
- 1-m telescope at CTIO, to monitor ongoing microlensing events to look for planets (“PLANET program”), 2 weeks, Aug 2004
- Sutherland Observatory, 2 weeks in July, 2002 at the 1m telescope, “PLANET program”
- Sutherland Observatory, 2 weeks in July, 2001 at the 1m telescope, “PLANET program”
- Very Large Array, Socorro, June, 1998, “Radio continuum observations of the most luminous X-ray cluster RXJ1347.5-1145”
- Kitt-Peak, Oct 1997, 7 nights at the Coude-feed telescope, for “High-res spectroscopy of 51-Peg type stars”

As a support astronomer at different observatories, I had several observing runs with ground-based optical telescopes, which are too numerous to list here.