

DR. JOSH WALAWENDER

Instrument/Research Specialist at Subaru Telescope, NAOJ

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EDUCATION

- **Ph.D.** in Astrophysical & Planetary Sciences (2006) -- University of Colorado at Boulder
- **M.S.** in Astrophysical & Planetary Sciences (2002) -- University of Colorado at Boulder
- **B.A.s** in Physics and in Astrophysics (2000) -- University of California at Berkeley
 - Graduated with “high honors in physics and distinction in general scholarship”
 - Awarded the Chancellor’s Scholarship (1996-2000)

SKILLS

- **Systems Engineering:** Designed, implemented, and maintained optical, mechanical, electrical, and computer systems for Subaru Telescope, the Hoku Ke’a Telescope, and the VYSOS Project.
- **Instrumentation:** I have broad knowledge of the various systems which make up an astronomical instrument including optics, mechanical systems, vacuum systems, cryogenics, communications and control. Much of my work has focused on improving reliability of complex instruments.
- **Project Management:** Managed the nuMOIRCS detector upgrade project at Subaru Telescope.
- **Programming:** I have written and maintain a python module for automated image quality analysis¹ for robotic telescopes. I am familiar with version control and collaborative coding practices using git and github.
- **Data Collection and Analysis/Scientific Research:** I have authored numerous papers on the topic of star formation and protostellar feedback. I have written programs to collect performance metrics and analyze the operations of a robotic observatory system.
- **Technical Communication:** I have taught upper division classes in astrophysics, mentored students, and written software tutorials. I have written technical documentation for instrumentation. I have also presented numerous public talks on astronomy to lay audiences.

EXPERIENCE

Instrumentation/Research Specialist at Subaru Telescope, NAOJ (10/2012-current)

- Responsible for the maintenance of the Fiber Multi Object Spectrograph (FMOS) prime focus instrument. I implemented several projects to improve reliability of the instrument.
- Project manager for the nuMOIRCS project to upgrade the MOIRCS instrument.

Interim Director of Hoku Ke’a Telescope and Assistant Professor of Astronomy at the University of Hawaii at Hilo, Hilo, HI (3/2011 - 5/2012)

- While director of the Hoku Ke’a Telescope, I undertook a program to thoroughly evaluate all components of the observatory to determine why the system was not operational.
- I then made retrofit plans for the telescope and observatory systems and formulated a budget. Once funding was secured, I began the commissioning process by implementing projects to repair or upgrade numerous observatory systems.

¹ IQMon: <https://github.com/joshwalawender/IQMon>

Postdoctoral Fellow at the University of Hawaii Institute for Astronomy, Hilo, HI (5/2006 - 3/2011 & 8/2012-10/2012)

- I led the commissioning project for a telescope (VYSOS-16N) which involved evaluation and troubleshooting of all telescope systems. My work included a complete redesign of the optical system, and testing which revealed problems in the polar axis assembly.
- I designed, installed, and commissioned both of the second generation telescopes: a wide field survey telescope (VYSOS-5) and a larger survey telescope (VYSOS-20). This included all components of the observatory system (the enclosure, telescope, camera, and mount) as well as the infrastructure (computers, communication, safety systems, and control software).

Research Assistant at the University of Colorado at Boulder (2000-2006)

- In my PhD thesis project, I carried out a search for and study of outflows from young stars by surveying the Perseus Molecular Cloud, cataloging the shocks both known and newly discovered, and calculating their influence on the dynamics of the molecular cloud.

Research Assistant at the University of California at Berkeley (1998-2000)

- Examined the structure of the galactic magnetic field using the polarization of starlight with Dr. Carl Heiles of the Astronomy Department as my Senior Honors Thesis.
- Calibrated gamma ray detectors for a balloon borne experiment at the Space Sciences Lab.
- Evaluated the performance of MOSFET transistors at small length scales at Lawrence Berkeley National Lab for the ATLAS particle detector project for the Large Hadron Collider.