

# Craig A. Kulesa

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Steward Observatory  
University of Arizona  
Tucson, AZ 85721

Telephone: (520) 621-6540  
FAX: (520) 621-1532  
Email: ckulesa@email.arizona.edu  
<http://loke.as.arizona.edu/~ckulesa/>

## Professional Preparation

Ph.D., Astronomy	December 2002	The University of Arizona
B.S., Physics	June 1993	Miami University (Ohio)

<b>Appointments</b>	2012-	Associate Astronomer University of Arizona
	2006-	Assistant Astronomer University of Arizona
	2003-2006	Assistant Staff Scientist University of Arizona
	1998-2002	Research Assistant (Science and Instrumentation) University of Arizona
	1994-1996	Research Assistant (Science) University of Arizona

## Selected Papers

1. “Large Scale CO and [CI] Emission in the Rho Ophiuchi Molecular Cloud”, Kulesa, C.A., Hungerford, A.L., Walker, C.K., Zhang X., & Lane, A., 2005, ApJ, 625, 194
2. “Warm, Dense Molecular Gas in the ISM of Starbursts, LIRGs, and ULIRGs”, Narayanan, D., Groppi, C. E., Kulesa, C. A., & Walker, C. K. 2005, ApJ, 630, 269.
3. “Millimeter and Submillimeter Survey of the R Coronae Australis Region”, Groppi, C. E., Kulesa, C., Walker, C., & Martin, C. L. 2004, ApJ, 612, 946
4. “Exceptional Terahertz Transparency and Stability Above Dome A, Antarctica”, Yang, H. & Kulesa, C. A., et al. 2010, PASP, 122, 490
5. “Abundances of H<sub>2</sub>, H<sub>3</sub><sup>+</sup> & CO in Dark Molecular Clouds”, Kulesa, C. A. & Black, J. H. 2012, ApJ, submitted

## Selected Related Papers

1. “Pre-HEAT: Submillimeter Site Testing and Astronomical Spectra from Dome A, Antarctica”, Kulesa, C.A, et al., Proc SPIE 7012, 545 (2008).
2. “Deep Near-Infrared Observations of L 1014: Revealing the Nature of the Core and its Embedded Source”, Tracy L. Huard et al., 2006, ApJ, 649, 391.

3. "The Youngest T Tauri Star - the Sudden Appearance of McNeil's Nebula", Rettig, T. & S. Brittain, E. Gibb, T. Simon & C. Kulesa, 2005, ApJ, 626, 245.
4. "CO Line Emission and Absorption from the HL Tau Disk - Where is all the dust?", Brittain, S., T. Rettig, T. Simon & C. Kulesa, 2004. ApJ, 2005, 626, 283.
5. "SuperCam: a 64-pixel heterodyne imaging array for the 870-micron atmospheric window", Groppi, C., Walker, C., Kulesa, C., Puetz, P., Golish, D., Gensheimer, P., Hedden, A., Bussmann, S., Weinreb, S., Kuiper, T., Kooi, J., Jones, G., Bardin, J., Mani, H., Lichtenberger, A., Narayanan, G., 2006, Proc. SPIE, vol 6275, 62750O.

### **Synergistic Activities:**

- Dissemination of research results to the wider public by lectures and presentations, e.g. through Steward Observatory programs, student organizations, and primary/secondary schools.
- Development of new techniques for molecular cloud modeling of physical structure, chemistry, radiative transfer and dynamics.
- Development of infrared and submillimeter survey data and science products for ecological studies of the Milky Way

### **Instrumentation Experience Relevant to this Proposal:**

1. PI of *HEAT*, an automated 0.6-meter terahertz telescope with 0.5-2 THz heterodyne receivers deployed in January 2012 to Ridge A, Antarctica, the best site on Earth for far-IR astronomy.
2. Deputy-PI of the *Stratospheric Terahertz Observatory (STO)*, a balloon borne experiment to explore the life cycle of the ISM.
3. Deputy-PI of *Supercam*, a 64-beam, 345 GHz heterodyne receiver to be deployed at the 10-meter HHT telescope in Arizona. Responsibilities focus on the I&T of IF processor and spectrometer, system level testing, telescope integration, data system.
4. Constructed *ARIES*, the Arizona Infrared Imager and Echelle Spectrometer, for the adaptive optics secondary at the 6.5-meter MMT. Aside from NIRSPEC at Keck, ARIES is the only cross-dispersed NIR echelle spectrometer in the northern hemisphere.

### **Collaborations, 2010-2012:**

J. Biegging (Arizona)	S. Brittain (Clemson)	D. Chuss (NASA/GSFC)
C. Groppi (Arizona)	D. Hollenbach (NASA-Ames)	T. Huard (CfA)
A. Lane (Harvard/CfA)	D. McCarthy (Arizona)	G. Narayanan (UMass/Amherst)
G. Novak (Northwestern)	T. Rettig (Notre Dame)	T. Simon (Hawaii)
A. Stark (Harvard/CfA)	C. Walker (Arizona)	M. Wolfire (Maryland)

### **Ph.D. Advisors:**

Christopher K. Walker (Arizona)  
John H. Black (Onsala Space Observatory)

### **Ph.D. Advisees:**

Abigail Hedden (2007, Univ. of Arizona)  
Desika Narayanan (2007, Univ. of Arizona)