

Jeffrey F. Wagg

Personal Data

Date of Birth: March 26, 1978
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Curriculum Vitae

My research is currently focused on studying the formation, and evolution of large-scale structure in the Universe, mainly through observations of high-redshift, dusty starburst galaxies and quasars at submm-through-radio wavelengths. I have been heavily involved in SHADES, the largest blank-field extragalactic submm-wavelength survey to date. I am also working on observations of molecular and atomic gas in early Universe galaxies.

Education

- PhD in mm-wavelength cosmology, INAOE, Puebla, Mexico, **Supervisor:** Dr. David H. Hughes, **Period:** Jan. 2003 - Dec. 2006
- SAO predoctoral fellowship student, CfA, Cambridge, USA, **Supervisor:** Dr. David J. Wilner, **Period:** Jan. 2005 - Feb. 2006
- Honours degree in Physics and Astronomy, University of Victoria, Victoria, Canada, **Period:** Sept. 1997 - April 2002

Fellowships and Awards

- Max-Planck/NRAO Fellow, **Location:** NRAO, Socorro, USA, **Supervisor:** Dr. Chris Carilli, **Period:** Jan. 2007 - present
- SAO Predoctoral Fellowship, **Value:** USD \$25 000/yr, **Location:** Harvard-Smithsonian Center for Astrophysics, **Supervisor:** Dr. David Wilner, **Period:** Jan. 2005 - Feb. 2006

- Doctoral Scholarship in Astrophysics, **Value:** USD \$8 560/yr, **Location:** Instituto Nacional de Astrofísica, Óptica y Electrónica, **Supervisor:** Dr. David Hughes, **Period:** Jan. 2002 - present
- Undergraduate NSERC Award (*not tenured*), **Value:** USD \$800/month, **Location:** Department of Physics and Astronomy, University of Victoria, **Period:** Sept. 2001 - Dec. 2001
- David Criswick undergraduate bursary, **Value:** USD \$800/yr, **Location:** Department of Physics and Astronomy, University of Victoria, **Period:** Jan. 2001 - April 2001

Publication List

Refereed publications

1. Gaztañaga, E., **Wagg, J.**, Multamäki, T., Montaña, A., & Hughes, D. H., *Two-point anisotropies in WMAP and the cosmic quadrupole*, 2003, MNRAS, 346, 47
2. Gaztañaga, E., & **Wagg, J.**, *Three-point temperature anisotropies in WMAP: Limits on CMB non-Gaussianities and nonlinearities*, 2003, Phys. Rev. D, 68, 021302
3. **J. Wagg**, D.J. Wilner, R. Neri, D. Downes, & T. Wiklind, *HCN $J=5-4$ Emission in APM08279+5255 at $z=3.91$* , 2005, ApJ, 634, L13
4. Mortier *et al.* (**inc. J. Wagg**), *The SCUBA Half Degree Extragalactic Survey (SHADES) - I: Survey motivation, design and data processing*, 2005, MNRAS, 363, 563
5. K. Coppin *et al.* (**inc. J. Wagg**), *The SCUBA Half Degree Extragalactic Survey (SHADES) - II: 850 μ m Number Counts*, 2006, MNRAS, 372, 1621
6. **J. Wagg**, D.J. Wilner, R. Neri, D. Downes, & T. Wiklind, *Atomic Carbon in APM08279+5255 at $z=3.91$* , 2006, ApJ, 651, 46
7. Weiss *et al.* (**inc. J. Wagg**), *Highly-excited CO emission in APM08279+5255 at $z=3.9$* , 2007, A&A, 467, 955
8. **J. Wagg**, D.H. Hughes, I. Aretxaga, E. Chapin, J. Dunlop, E. Gaztanaga and M. Devlin, *A broadband spectroscopic search for CO line emission in HDF850.1: the brightest submillimetre object in the Hubble Deep Field North*, 2007, MNRAS, 375, 745
9. Ivison *et al.* (**inc. J. Wagg**), *The SCUBA Half Degree Extragalactic Survey (SHADES) - III: Identification of radio and mid-infrared counterparts to submillimetre galaxies*, 2007, MNRAS, 380, 199
10. Aretxaga *et al.* (**inc. J. Wagg**), *The SCUBA Half Degree Extragalactic Survey (SHADES) - IV: Radio-mm-FIR photometric redshifts*, 2007, MNRAS, 379, 1571
11. Carilli *et al.* (**inc. J. Wagg**), *Detection of $1.6 \times 10^{10} M_{\odot}$ of molecular gas in the host galaxy of the $z=5.77$ SDSS quasar J0927+2001*, 2007, ApJL, 666, L9

12. Wang, R., **Wagg, J.**, Carilli, C.L. et al., *SHARC-II 350um Observations of Thermal emission from Warm Dust in $z > 5$ Quasars*, 2008, AJ, 135, 1201
13. Coppin et al. (inc. **J. Wagg**), *The SCUBA Half Degree Extragalactic Survey (SHADES) - VI: 350 micron mapping of submm galaxies*, 2008, MNRAS, 384, 1597
14. Papadopoulos, P.P., Feain, I., **Wagg, J.**, & Wilner, D.J., *A New Twist to an Old Story: HE 0450-2958 and the ULIRG \rightarrow Optically Bright QSO Transition Hypothesis*, 2008, ApJ, 684, 845
15. Wang, R., Carilli, C.L., **Wagg, J.** et al., *Thermal emission from warm dust in the most distant quasars*, 2008, ApJ, 687, 848
16. Edmonds, R., **Wagg, J.** et al., *An EVLA search for water megamaser emission at $z \sim 2.5$* , 2009, AJ *accepted*
17. **J. Wagg**, N. Kanekar, & C .L. Carilli, *Constraints on the molecular gas content of $z > 6.5$ Ly α emitters*, 2009, ApJL, *submitted*
18. **J. Wagg**, et al. *Radio and X-ray properties of submillimeter galaxies in the A2125 field*, 2009, ApJ, *submitted*

Non-refereed publications

1. Robb, R. M., **Wagg, J.**, Berndsen, A., & Desroches, L. 1999, IBVS, 4800, 1
2. Robb, R. M., Cardinal, R. D., **Wagg, J.**, Berndsen, A., & Desroches, L. 1999, IBVS, 4820, 1
3. Archibald E. N., **Wagg J. W.**, Jenness T., *Calculating Sky Opacities: a re-analysis for SCUBA data*, 2000, JCMT calibration NOTE 2.2
4. **Wagg, J.**, *A Guide to Maintaining the UKIRT Archive*, 2000, UKIRT software document
5. Robb, R. M., **Wagg, J.**, & Berndsen, A. 2001, IBVS, 5079, 1
6. Robb, R. M., **Wagg, J.**, & Berndsen, A. 2001, IBVS, 5088, 1
7. Hughes, D. H., Aretxaga, I., **Wagg, J.**, Olmi, L., & Chapin, E. L., *Resolving the FIR-Submm Background from Dome C, Antarctica*, 2005, EAS Publications Series, 14, 75
8. D.J. Pisano, Ron Maddalena, Charles Figura, & **Jeff Wagg**, *Recent Astronomical Commissioning Results for the Ka-band (26.0-40 GHz) Receiver*, 2007, GBT memo #246
9. Ron Maddalena, D.J. Pisano & **Jeff Wagg**, *Astronomical Results from the Recommissioning of the Ka-band as a Dual-Feed, Single Channel Receiver using the Spectrometer*, 2007, GBT memo #255
10. **Wagg, J.**, et al. *Ka-band observations of low-J CO line emission in $z \sim 6$ quasar host galaxies*, 2008, GBT memo #256

Conference presentations

1. **Jeff Wagg**, *The Low CMB Quadrupole: A Need for New Physics?*, talk given at XVII National Astrophysics Conference, May 2003, Mexico City, MX
2. **Jeff Wagg**, Arif Babul, Romeel Davé, Sara Ellison & Antoinette Songaila, *High-Redshift Ly α forest lines in a Concordance Λ CDM Universe*, poster contribution for *Multi-wavelength AGN Surveys*, Dec. 2003, Cozumel, MX
3. **Wagg, J.**, Wilner, D.J., Neri, R., Downes, D., & Wiklind, T., *Detection of HCN in the Ultraluminous Quasar: APM08279+5255 at $z = 3.9$* , poster presentation at *Submillimeter Astronomy: in the Era of the SMA*, June 13 - 16, 2005, Cambridge, MA (also a member of the local organizing committee)
4. **Wagg, J.**, Wilner, D.J., Neri, R., Downes, D., & Wiklind, T., *Detection of HCN in the Ultraluminous Quasar: APM08279+5255 at $z = 3.9$* , poster presentation at *A Pan-Chromatic View of Clusters of Galaxies and the Large-Scale Structure*, June 27 - July 8, 2005, Tonantzintla, Puebla, MX
5. D.H. Hughes, **J. Wagg**, I. Aretxaga, et al. 2006, *A broadband spectroscopic search for CO line emission in HDF850.1: the brightest submillimetre object in the Hubble Deep Field From Z-machines to ALMA*, ASP conference series, eds. Baker, Glenn, Harris, Mangum, and Yun
6. Carilli, M. & **Wagg, J.**, *Simulating ALMA Observations of High-Redshift Submillimeter Galaxies*, AAS Meeting #211, #143.03

Teaching Experience

- Lecturer at 2008 Santa Fe Cosmology Workshop
- Cosmology Lecturer for 2008 NRAO summer students
- Supervisor for Robert Edmonds: undergraduate summer student at NRAO from U. of New Mexico, **Period:** June 2008 - Aug. 2008
- Cosmology Lecturer for 2007 NRAO summer students
- Supervisor for Michael Carilli: undergraduate summer student at NRAO from Notre Dame, **Period:** June 2007 - Aug. 2007
- Co-supervisor for Susanna Finn: undergraduate summer student at INAOE from Brown University, **Period:** May 2004 - July 2004

Extracurricular positions held in astronomy

- **Position:** Weekly second shift telescope operator for the Smithsonian Millimeter Array (SMA), **Location:** CfA, **Supervisor:** Dr. David J. Wilner, **Period:** Sept. 2005 - Feb. 2006

- **Position:** Research assistant responsible for analyzing HST (WFPC2) images of globular clusters, **Location:** University of Victoria, **Supervisor:** Dr. Sylvie Beaulieu, **Period:** Sept. 2001 - Dec. 2001
- **Position:** Research student (Co-op) in theoretical cosmology (Cosmic Microwave Background), **Location:** INAOE, **Supervisor:** Dr. Enrique Gaztañaga, **Period:** May 2001 - August 2001
- **Position:** Research assistant in theoretical cosmology (Lyman Alpha Forest), **Location:** University of Victoria, **Supervisor:** Dr. Arif Babul, **Period:** Sept. 2000 - April 2002
- **Position:** Co-op student working on data analysis and maintenance of astronomical databases, **Location:** United Kingdom Infrared Telescope (UKIRT), **Supervisors:** Dr. Andy Adamson and Frossie Economou, **Period:** May 2000 - Sept. 2000
- **Position:** Co-op student working on atmospheric opacity corrections to submm-wavelength SCUBA data, **Location:** James Clerk Maxwell Telescope (JCMT), **Supervisors:** Dr. Tim Jenness and Dr. Elese Archibald, **Period:** Jan. 2000 - April 2000
- **Position:** Telescope operator and data analyst, **Location:** Climenhaga Observatory, University of Victoria, **Supervisor:** Russ Robb, **Period:** May 1999 - Dec. 1999

Technical Experience

Observing

- James Clerk Maxwell Telescope (SCUBA)
- United Kingdom Infrared Telescope
- Green Bank Telescope (Ku, K, Ka and Q-band spectral line searches)
- Caltech Submillimeter Observatory (SHARCII observing)
- Smithsonian Millimeter Array (4 months as weekly remote telescope operator from Cambridge)
- IRAM 30-m telescope (MAMBO observing)

Computing Experience

- **Programming languages:** *Perl*, *IDL*, and some *C*
- **Data reduction software experience:** exposed to various Starlink software including *SURF* and *SPECX*; customization of existing data reduction software for GBT spectral line analysis (*IDL*); reduction of IRAM PdBI data using *GILDAS*; past experience with *IRAF*; recent experience with analysis of SMA and CARMA data using *MIR* and *MIRIAD*

References

- Dr Chris Carilli
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