

JAMES MICHAEL DE BUIZER

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CURRENT POSITION

Gemini Science Fellow and T-ReCS Instrument Scientist

MAIN RESEARCH AREAS

- Massive star formation: high mass protostellar objects to ultracompact HII regions
- IR and mm studies of jets and outflows from young stellar objects
- Maser emission in star forming regions (methanol, hydroxyl, and water masers)
- Circumstellar accretion, protoplanetary, and debris disks
- Active galactic nuclei and nuclear starbursts
- The supernova 1987A remnant
- Mid-infrared instrumentation

EDUCATION

August 2000	University of Florida <i>Doctor of Philosophy, Astronomy</i> Dissertation: "A Mid-Infrared Imaging Survey of Star Forming Regions Containing Methanol and Water Maser Emission"	Gainesville, FL Advisor: Robert K. Piña
August 1997	University of Florida <i>Master of Science, Astronomy</i>	Gainesville, FL
May 1995	University of Florida <i>Bachelor of Science, Magna Cum Laude, Astronomy</i> Senior Thesis: "Short Term Periodicities in the Decametric Radiation of Jupiter"	Gainesville, FL Advisor: Thomas Carr

PROFESSIONAL SERVICES AND MEMBERSHIPS

2006-present	International Astronomical Union Member
2000-present	Referee for Astrophysical Journal and Astrophysical Journal Letters
1995-present	American Astronomical Society Member
2004-2006	TAC Member for Gemini Observatory Staff Proposals
2004-2005	TAC Member for Gemini-CONICYT Proposals (Chilean Gemini TAC)
2004	Proposal peer reviewer for PATT (UK) Proposals for the Anglo-Australian Telescope
2003 Jan	Session Chair for American Astronomical Society Meeting
2002 Mar	Lead Organizer, Workshop Chair, and Session Chair of the International Astronomical Observatories in Chile Workshop on Star Formation Across the Stellar Mass Spectrum
2002 Jan	Session Chair for American Astronomical Society Meeting
1999 Apr	Co-Chair of University of Florida Disk Workshop

POSITIONS HELD AND RESEARCH ACTIVITIES

2003-present	Gemini Observatory <i>Gemini Observatory Science Fellow</i> <ul style="list-style-type: none">▪ T-ReCS (Thermal Region Camera and Spectrograph) Instrument Scientist in charge of support and maintenance▪ Queue Coordinator in charge of nightly scheduling of queue science and engineering observations of the Gemini South telescope▪ Was in charge of system verification of T-ReCS on Gemini South 8-meter telescope▪ Worked on acceptance testing, commissioning, and early science usage of T-ReCS▪ Research includes work on a mid-infrared observations of hot molecular cores, circumstellar accretion disks and outflows, Supernova 1987A, AGN, masers in star-formation regions, and the Beta Pictoris disk. Also performing a near-infrared and millimeter studies of massive young stellar objects	La Serena, Chile
2000-2004	Cerro Tololo Inter-American Observatory <i>CTIO Postdoctoral Fellow</i> <ul style="list-style-type: none">▪ This fellowship was a 100% research position▪ Lead organizer and Chair of the international conference “Galactic Star Formation Across the Stellar Mass Spectrum” and lead editor of the book of proceedings for that conference▪ Head organizer of the joint CTIO/Gemini/Las Campanas colloquiums▪ Provided technical support for the University of Florida mid-infrared instrument OSCIR while it was a visitor instrument on Gemini South▪ Research included work on mid-infrared observations of hot molecular cores, methanol masers in star-formation regions, circumstellar disks around massive stars, ultracompact HII regions, and AGN. Also performed near infrared H₂ studies of outflow from massive stars.	La Serena, Chile
1997-2000	University of Florida <i>Graduate Student and FSGC Graduate Fellow</i> <ul style="list-style-type: none">▪ Provided technical support of the University of Florida mid-infrared instrument OSCIR on CTIO 4-m, IRTF, Keck, and both Gemini telescopes▪ Doctoral thesis research was on masers in massive star-formation regions	Gainesville, FL
1993-1996	University of Florida <i>Florida Undergraduate Scholar</i> <ul style="list-style-type: none">▪ Principal observer in a program using the University of Florida 0.8-meter telescope to obtain optical wavelength lightcurves of asteroids as part of a calibration program for the Infrared Space Observatory satellite▪ Studied the effects of the Comet Shoemaker-Levy 9 collision with Jupiter in both optical and radio regimes▪ Undergraduate thesis was on the periodicities in the decametric radio emission of Jupiter	Gainesville, FL

GRANTS, AWARDS, AND HONORS

2007	Spitzer Space Telescope Cycle 4 Program \$85,000 – <i>The Continuing IR Evolution of SN1987A</i> (Co-I with Eli Dwek)
2006	Spitzer Space Telescope Cycle 3 Program \$79,000 – <i>The Infrared Evolution of SN1987A</i> (Co-I with Eli Dwek)
2000 - 2004	Cerro-Tololo Inter-American Observatory Postdoctoral Fellowship
1998 - 2000	Florida Space Grant Consortium Graduate Fellowship Program \$36,000 – <i>Infrared Study of Young Stellar Objects with Methanol Maser Emission: A Search for Circumstellar Disks</i> (sole author)
1995	National Collegiate Natural Sciences Award
1994	NASA/Florida Space Grant Undergraduate Fellowship Program \$4500 – <i>Search for Effects of Comet S-L 9 Fragment Impacts on the Decametric Emission from Jupiter</i> (sole author)
1990 - 1994	Florida Undergraduate Scholar

OBSERVING EXPERIENCE

- Gemini North and South 8-meter telescopes with mid-infrared instruments T-ReCS and OSCIR, near-infrared instrument GNIRS, and optical instrument GMOS
- W.M. Keck II 10-meter telescope with mid-infrared instrument OSCIR
- Australian Telescope Compact Array of six 22-meter antennas and their 3-millimeter wavelength interferometric system
- Anglo-Australian 4-meter Telescope and IRIS2 (facility near infrared imager/spectrograph)
- Cerro-Tololo Inter-American Observatory 4-meter telescope with OSCIR and OSIRIS (Ohio State near InfraRed Imager/Spectrometer)
- NASA's InfraRed Telescope Facility 3-meter telescope with OSCIR and NSFCam (facility near infrared imager)
- University of Florida Radio Observatory (650- dipole decametric-wavelength array)
- University of Florida 0.8-meter telescope with the facility optical CCD camera

INSTRUMENTATION EXPERIENCE

- Presently T-ReCS Instrument Scientist at Gemini South in charge of maintenance and usage of the instrument
- Acceptance testing, commissioning, system verification, and early science usage of T-ReCS on the Gemini South 8-m
- Three years providing technical support for OSCIR (University of Florida Infrared Astrophysics Group mid-infrared camera/spectrometer) while it was a facility instrument at the IRTF 3-m, CTIO 4-m, and Keck 10-m telescopes
- Laboratory experience includes characterization and implementation of filters in mid-infrared cryostats, as well as general maintenance, upgrading, and testing of mid-infrared instrumentation and software

PARTICIPATION IN PROFESSIONAL CONFERENCES AND MEETINGS

2007 Mar	Astrophysical Masers and Their Environments ▪ <i>Invited Speaker and Session Chair</i>	Alice Springs, Australia
2007 Jan	American Astronomical Society Meeting	Seattle, WA
2006 Dec	Fifth Annual Meeting of the Chilean Society of Astronomy ▪ <i>Invited Speaker</i>	La Serena, Chile
2006 Aug	IAU General Assembly and Triggered Star Formation in a Turbulent ISM	Prague, Czech Republic
2006 Jun	First Light Science with the GTC	Miami, FL
2005 Oct	Protostars and Planets V	Waikoloa, HI
2005 May	Massive Star Birth: A Crossroads of Astrophysics	Acireale, Italy
2005 Jan	American Astronomical Society Meeting	San Diego, CA
2004 May	Gemini Science 2004: A First Conference On Gemini Science Results ▪ <i>Invited Speaker</i>	Vancouver, Canada
2003 Nov	ESO Workshop on High Angular Resolution Infrared Spectroscopy	Garching, Germany
2003 Jul	IAU General Assembly and Star Formation at High Angular Resolution Symposium ▪ <i>Invited Speaker</i>	Sydney, Australia
2003 Jan	American Astronomical Society Meeting ▪ <i>Session Chair</i>	Seattle, WA
2002 Aug	Chemistry as a Diagnostic of Star Formation	Ontario, Canada
2002 Apr	Debris Disks and the Formation of Planets: A Symposium in Memory of Fred Gillett	Tucson, AZ
2002 Mar	Workshop on Star Formation Across the Stellar Mass Spectrum ▪ <i>Workshop Chair and Session Chair</i>	La Serena, Chile
2002 Jan	American Astronomical Society Meeting ▪ <i>Session Chair</i>	Washington, DC
2001 Mar	Cosmic Masers: From Protostars to Blackholes	Rio de Janeiro, Brazil
2001 Jan	American Astronomical Society Meeting	San Diego, CA
2000 Jan	Disks, Planetesimals, and Planets	Tenerife, Spain
2000 Jan	American Astronomical Society Meeting	Atlanta, Georgia
1999 Apr	University of Florida Disk Workshop ▪ <i>Workshop Co-Chair</i>	Gainesville, FL
1999 Jan	American Astronomical Society Meeting	Austin, Texas

UNIVERSITY AND INSTITUTIONAL COLLOQUIA, SEMINARS, AND TALKS

Australia Telescope National Facility / Anglo Australian Observatory Joint Colloquium	Sydney, Australia
California Institute of Technology / Infrared Processing and Analysis Center Seminar	Pasadena, CA
Cerro Tololo Inter-American Observatory / Gemini Observatory / University of La Serena Joint Colloquium	La Serena, Chile
National Optical Astronomy Observatory Colloquium	Tucson, AZ
Princeton University Interstellar Medium and Star Formation Seminar	Princeton, NJ
University of California, Berkeley Theoretical Astrophysics Center Seminar	Berkeley, CA
University of Florida Department of Astronomy Colloquium	Gainesville, FL
Universidad Nacional Autónoma de México, Coloquio del Centro de Radioastronomía y Astrofísica	Morelia, México
University of New South Wales Department of Astrophysics and Optics Seminar	Sydney, Australia
University of Melbourne Astrophysics Group Seminar	Melbourne, Australia
Northwestern University Astronomy and Astrophysics Group Seminar	Evanston, IL

TEACHING EXPERIENCE

2000 - present	Responsible for teaching specialized short courses on observational techniques and star formation to students of Cerro Tololo's REU (Research Experience for Undergraduates) Program
1998-1999	Acted as a substitute teacher for University of Florida faculty members. Responsible for teaching undergraduate classes (approximately 40-60 students per class). Prepared computer-aided lectures and coursework for faculty
1997-1999	Teaching Assistant at the University of Florida. Responsible for teaching two 20-student classes with laboratories per semester

PUBLICATIONS

REFEREED JOURNAL ARTICLES

- De Buizer, J.M.** 2007, 'SiO Outflow Signatures from Massive Young Stellar Objects with Linearly Distributed Methanol Masers', *Astrophysical Journal*, submitted
- Campbell, M.F., Sridharan, T.K., Bsuther, H., Lacy, J.H., Hora, J.L., Zhu, Q., Kassis, M., Saito, M., **De Buizer, J.M.**, Fung, S.H., Johnson, L.C. 2007, 'Mid-Infrared Photometry and Spectra of Three High Mass Protostellar Candidates at IRAS 18151-1208 and IRAS 20343+4129', *Astrophysical Journal*, submitted
- De Buizer, J.M.** 2007, 'The Complex Mid-Infrared Structure at the Heart of IRAS 20126+4104', *Astrophysical Journal Letters*, Vol. 654, pg. 174
- Moerchen, M. M., Telesco, C.M., **De Buizer, J.M.**, Radomski, J. T., & Packham, C. 2007, 'First Images of the Warm Dust surrounding HD 32297', *Astrophysical Journal Letters*, accepted
- Radomski, J.T., Packham, C., Orduna, M., Perlman, E., Matthews, H., Leeuw, L.L., **De Buizer, J.M.**, & Telesco, C.M. 2007, 'Gemini Imaging of Mid-IR Emission from the Nuclear Region of Centaurus A', *Astrophysical Journal*, submitted
- Ireland, M.J., Monnier, J.D., Tuthill, P.G., Cohen, R.W., **De Buizer, J.M.**, Volk, K., Telesco, C.M., Packham, C., Ciardi, D., Hayward, T. & Lloyd, J.P. 2007, 'Born-Again Protoplanetary Disk Around Mira B', *Astrophysical Journal*, Vol. 622, pg. 651
- De Buizer, J.M.** 2006, 'The Remarkable Mid-Infrared Jet of Massive Young Stellar Object G35.20-0.74', *Astrophysical Journal Letters*, Vol. 642, pg. 57
- Bouchet, P., Dwek, E., Danziger, J.I., Arendt, R.G., **De Buizer, J.M.**, Park, S., Suntzeff, N.B., Kirshner, R.P., & Challis, P. 2006, 'SN1987A After 18 Years: Mid-Infrared Gemini and Spitzer Observations of the Remnant', *Astrophysical Journal*, Vol. 650, pg. 212
- De Buizer, J.M.**, Osorio, M., & Calvet, N. 2005, 'Observations and Modeling of the 2-25 μ m Emission From High Mass Protostellar Object Candidates', *Astrophysical Journal*, Vol. 635, pg. 452
- De Buizer, J.M.** & Minier, V. 2005, 'Investigating the Nature of the Dust Emission Around Massive Protostar NGC 7538 IRS 1: Circumstellar Disk and Outflow', *Astrophysical Journal Letters*, Vol. 628, pg. L151
- De Buizer, J.M.**, Radomski, J.T., Telesco, C.M., & Pina, R.K. 2005, 'Observations of Massive Star Forming Regions with Water Masers: Mid-Infrared Imaging', *Astrophysical Journal Supplement Series*, Vol. 156, pg. 179
- Ciardi, D.R., Gomez Martin, C., Telesco, C.M., Packham, C., Radomski, J.T., **De Buizer, J.M.**, & Phillips, C.J. 2005, 'Crystalline Silicate Emission in the Flat-Spectrum Binary System Serpens-SVS20', *Astrophysical Journal*, Vol. 629, pg. 897

- Meech, K.J., **De Buizer, J.M.**, et al. 2005, 'Deep Impact: Observations from a Worldwide Earth-Based Campaign', *Science* 310, p. 265
- Telesco, C.M., Fisher, R.S., Wyatt, M.C., Dermott, S.F., Kehoe, T., Novotny, S., Marinas, N., Radomski, J.T., Packham, C., **De Buizer, J.M.**, & Hayward, T.L. 2005, 'Mid-IR Images of Beta Pictoris and the Possible Role of Planetesimal Collisions in the Central Disk', *Nature*, Vol. 433, pg. 133
- Gorjian, V., Werner, M. W., Mould, J.R., Gordon, K. D., Muzzerole, J., Morrison, J., Surace, J. M., Rebull, L.M., Hurt, R. L., Smith, R. C., Points, S.D., Aguilera, C., **De Buizer, J.M.**, Packham, C. 2004, 'Infrared Imaging of the LMC Star Forming Region Henize 206', *Astrophysical Journal Supplement Series (Spitzer Special Edition)*, Vol. 154, pg. 275
- Bouchet, P., **De Buizer, J.M.**, Suntzeff, N.B., Danziger, J.I., Hayward, T.L., Telesco, C.M., & Packham, C. 2004, 'High-Resolution Imaging of SN 1987A at 10 μm ', *Astrophysical Journal Letters*, Vol. 611, pg. 275
- De Buizer, J.M.**, Radomski, J.T., Telesco, C.M., & Pina, R.K. 2003, 'A Search for Mid-Infrared Emission from Hot Molecular Core Candidates', *Astrophysical Journal*, Vol. 589, pg. 1127
- De Buizer, J.M.** 2003, 'Testing the Circumstellar Disk Hypothesis: A Search for H₂ Outflow Signatures from Young Massive YSOs with Linearly Distributed Methanol Masers', *Monthly Notices of the Royal Astronomical Society*, Vol. 341, pg. 277
- Radomski, J.T., Pina, R.K., Packham, C., **De Buizer, J.M.**, Fisher, R.S., & Telesco, C.M. 2002, 'Resolved Mid-IR Emission in the Narrow Line Region of NGC 4151', *Astrophysical Journal*, Vol. 587, pg. 117
- De Buizer, J.M.**, Radomski, J.T., Pina, R.K., & Telesco, C.M. 2002, 'Mid-Infrared Imaging of NGC 6334 I', *Astrophysical Journal*, Vol. 580, pg. 305
- De Buizer, J.M.**, Watson, A.M., Radomski, J.T., Pina, R.K., & Telesco, C.M. 2002, 'Mid-Infrared Detection of a Hot Molecular Core in G29.96-0.02', *Astrophysical Journal Letters*, Vol. 564, pg. L101
- De Buizer, J.M.**, Walsh, A.J., Pina, R.K., Phillips, C.J., & Telesco, C.M., 2002, 'High-Resolution Mid-Infrared Imaging of G339.88-1.26', *Astrophysical Journal*, Vol. 564, pg. 327
- De Buizer, J.M.**, Pina, R.K., & Telesco, C.M., 2000, 'Mid-Infrared Imaging of Massive Star Forming Sites Containing Methanol Masers', *Astrophysical Journal Supplement Series*, Vol. 130, pg. 437-461
- Carr, T.D., Reyes, F., Phillips, J.A., May, J., Wang, L., Aparici, J., Alvarez, H., Olmos, F., Garcia, L., **De Buizer, J.M.**, Greenman, W.B., Clark, Y., Levy, J., Padin, S., & Higgins, C.A. 1995, 'Results of Decametric Monitoring of the Comet Collision with Jupiter', *Geophysical Research Letters*, Vol. 22, no.13, pg. 1785

Carr, T.D., Reyes, F., Garcia, L., Greenman, W.B., Levy, J., Higgins, C.A., **De Buizer, J.M.**, May, J., Aparici, J., Alvarez, H., Olmos, F., Phillips, J.A., Clark, T., & Padin, S. 1994, 'Search for Effects of Comet S-L 9 Fragment Impacts on Low Frequency Emission from Jupiter', *Earth, Moon, and Planets*, Vol. 66, pg. 31

CONFERENCE PROCEEDINGS

De Buizer, J.M. 2007, 'The Infrared Environments of Masers Associated with Star Formation', in *Astrophysical Masers and Their Environments*, eds. J. Chapman & W. Baan, (IAU Symposium No. 242), in press

De Buizer, J.M. 2006, 'New Insights Into the Nature of Mid-Infrared Emission Associated with Massive Star Formation: Disks and Outflow', in *Triggered Star Formation in a Turbulent ISM*, eds. B.G. Elmegreen & J. Palous, (IAU Symposium No. 237), in press

Radomski, J. T. , Packham, C., Levenson, N. A., Perlman, E., Leeuw, L. L., Matthews, H., Mason, R., **De Buizer, J. M.**, Telesco, C. M., & Orduna, M. 2006, 'Mid-Infrared Emission from the Nucleus of Centaurus A', in *First Light Science with the GTC*, eds. R. Guzman, C. Packham & J.M. Rodriguez Espinosa (RMAA Conf. Ser.), in press

De Buizer, J.M. 2006, 'New Results from Observations of Massive Star Formation in the Mid-Infrared with Large Aperture Telescopes', in *First Light Science with the GTC*, eds. R. Guzman, C. Packham & J.M. Rodriguez Espinosa (RMAA Conf. Ser.), in press

De Buizer, J.M. 2005, 'Gemini T-ReCS and Michelle Observations of Massive Young Stellar Sources with Mid-Infrared Outflows and Jets', in *Protostars and Planets V*, pg. 8406

Pestalozzi, M. R., Elitzur, M., Minier, V., Conway, J., Booth, R., **De Buizer, J.M.**, Weigelt, G. 2005, 'Modelling a Circumstellar Disc Traced by Methanol Masers', in *Protostars and Planets V*, pg. 8129

Minier, V., **De Buizer, J.M.**, et al. 2005, 'The Earliest Stages of High Mass Star Formation – Methanol Maser Insights', in *Protostars and Planets V*, pg. 8055

De Buizer, J.M., Radomski, J.T., Telesco, C.M., & Pina, R.K. 2005, 'Masers and the Star Formation Process: New Insights Through Infrared Observations', in *Massive Star Birth: A Crossroads of Astrophysics*, eds. R. Cesaroni, E. Churchwell, M. Felli, & C.M. Walmsley (IAU Symposium No. 227), pg. 180

De Buizer, J.M. & Fisher, R.S. 2004, 'T-ReCS and Michelle - The Mid-Infrared Spectroscopic Capabilities of the Gemini Observatory', in *High Resolution Infrared Spectroscopy in Astronomy*, eds. H.U. Kaufl, R. Siebenmorgen and A. Moorwood (Springer-Verlag: ESO Astrophysics Symposia), pg. 84

Osorio, M., **De Buizer, J.M.**, Calvet, N. 2004, 'Non-spherical Models for the Spectral Energy Distributions of Massive Protostars', in *The Dusty and Molecular Universe: A Prelude to Herschel and ALMA*, ed. A. Wilson (ESA Conference Series), pg. 206

- De Buizer, J.M.** 2003, 'High Resolution Mid-Infrared Imaging of High Mass Protostellar Objects', in *IAU Symposium 221: Star Formation at High Resolution*, eds. R. Jayawardhana, M. Burton, and T. Bourke (ASP IAU Publications Volume S-221), pg. 181
- De Buizer, J.M.** 2003, 'A Search for Outflows from Massive Star Forming Regions Containing Linearly Distributed Methanol Masers', in *Chemistry as a Diagnostic of Star Formation*, eds. C.L. Curry and M. Fich (NRC of Canada Press), pg. 273
- Watson, A.M., **De Buizer, J.M.**, Radomski, J.T., Pina, R.K., & Telesco, C.M. 2003, 'Mid-Infrared Detection of a Hot Molecular Core in G29.96-0.02', in *Science with the GTC 10-m Telescope*, eds. J.M. Rodriguez, F. Garzon, and V. Melo (RevMexAA Serie de Conferencias, Vol. 16), pg. 127
- De Buizer, J.M.** 2003, 'High Resolution 18 μm Imaging of Hot Molecular Cores', in *Galactic Star Formation Across the Stellar Mass Spectrum*, eds. J. De Buizer and N.S. van der Bliik (ASP Conference Series Volume 287), pg. 230
- De Buizer, J.M.** 2002, 'The Relationship Between Masers and Massive Star Formation: What Can Be Learned from the Infrared?', in *Cosmic Masers: From Protostars to Blackholes*, eds. V. Migenes and M.J. Reid (ASP IAU Publications Volume S-206), pg. 19
- De Buizer, J.M.** 2001, 'Methanol Masers and the Circumstellar Disk Hypothesis', in *Disks, Planets, and Planetesimals*, eds. F. Garzon, C. Eiroa, D. de Winter, and T.J. Mahoney (ASP Conference Series Volume 219), pg. 187

BOOKS

- De Buizer, J.M.** and van der Bliik, N.S., eds. 2003, 'Galactic Star Formation Across the Stellar Mass Spectrum' (San Francisco: ASP)

CITATIONS

Number of citations in last 5 years: **268**
(from Smithsonian/NASA Astrophysics Data System)