

# Abraham Cornelis Adwin Boogert

## Curriculum Vitae—July 18, 2017

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### BIOGRAPHICAL:

- Nationality: USA
- Languages: Dutch (native), English (fluent), French (intermed.), German (intermed.), Spanish (beginner)

### EDUCATION:

**Ph.D. in Astrophysics** (Mar 1999): Kapteyn Astronomical Institute, University of Groningen, NL  
**M.Sc. in Astrophysics** (Jun 1994): Kapteyn Astronomical Institute, University of Groningen, NL

### PROFESSIONAL HISTORY:

<b>Jun 2017–present</b>	Associate Astronomer, University of Hawai'i, Honolulu, HI, USA 30% scientific research and 70% IRTF telescope support
<b>Sep 2013–Jun 2017</b>	Support Scientist, USRA, NASA Ames, Moffett Field, CA, USA 25% scientific research and 75% SOFIA spectroscopic instrument support
<b>Feb 2007–Sep 2013</b>	Research Scientist, Caltech, Pasadena, CA, USA [left at Herschel's end of l-He] Assistant level 2007-2011, Associate level 2012-2013 50% scientific research and 50% Herschel/HIFI calibration scientist
<b>Dec 2005–Feb 2007</b>	Assistant Astronomer (tenure track), NOAO, La Serena, Chile [left for personal reasons] 50% scientific research and 50% Gemini observer support
<b>Jan 2002–Dec 2005</b>	Senior Postdoctoral Scholar in Astronomy, Caltech, Pasadena, CA, USA Sponsor: Prof. Dr. G. A. Blake; research and OVRO MMA observer support
<b>Jan 1999–Jan 2002</b>	Postdoctoral Scholar in Physics, Caltech, Pasadena, CA, USA Sponsor: Prof. Dr. T. G. Phillips; research and CSO telescope observer support

### SCIENTIFIC INTERESTS:

- Evolution of molecular abundances, *in the solid and gas phase*, from dense clouds to planetary systems
- The structure and evolution of envelopes and hot cores around high mass protostars
- The structure and chemistry of circumstellar disks
- Interstellar chemistry, isotope ratios, and the application of solid state laboratory astrophysics

### PUBLICATIONS AND CITATIONS:

- 101 publications in refereed scientific journals; see attached list.
- *H*-index: 52 [ADS; 8,045 citations], *H*-index: 60 [Google Scholar; 10,970 citations]

SERVICE AND COMMITTEES:

2016	Reviewer funding proposal for FWO panel “Sciences of the Earth and Space” (Belgium)
2015	Nominating Committee member American Astronomical Society division of Laboratory Astrophysics
2013	Reviewer NASA Postdoctoral Program
2012	Reviewer NASA Postdoctoral Program
2012	Panel member (external) NASA Funding of Origins of Solar Systems
2011	Panel member (external) NASA Funding of Origins of Solar Systems
2011	Panel member (internal) NASA Funding of Exobiology/Evolutionary Biology
2011	Reviewer NASA Postdoctoral Program
2010-2011	Technical reviewer for Herschel Space Observatory (HIFI) OT proposals
2008-now	Chair of data reduction team Herschel/HIFI guaranteed time key program “CHESS”
2007	Panel member (internal) NASA Funding of Laboratory Astrophysics
2006-2007	Technical reviewer for Gemini Observatory (mid-IR) proposals
2006	Panel member (external) NASA Funding of Exobiology/Evolutionary Biology
2005	Member of selection committee CTIO (La Serena) Research Experience for Undergraduates program
2005	Panel member (external) NASA Funding of Origins of Solar Systems
2003	External Reviewer Time Allocation Committee United Kingdom Infrared Telescope
2002-2004	Member Time Allocation Committee Owens Valley Millimeter Array
2000-now	Referee for manuscripts <i>The Astrophysical Journal</i> (and <i>Letters</i> ), <i>Astronomy and Astrophysics</i> , <i>Science</i> , <i>Advances in Space Research</i> , <i>Monthly Notices of the Royal Astronomical Society</i>

TEACHING AND STUDENT SUPERVISION:

2013	Supervised 6-month IPAC visiting graduate student Emily Hardegree-Ullman (from RPI, Troy, NY)
Jun 2012	Lecturer graduate school “ <i>Chemistry and Spectroscopy of Interstellar Dust</i> ” in Cuijk, the Netherlands
Nov 2009	Guest lecturer on “ <i>Astrochemistry</i> ” for graduate students at SUNY Stony Brook, NY, USA
2008-2009	Supervised 6-month IPAC visiting graduate student Amanda Cook (from RPI, Troy, NY)
Jan 2005	Guest lecturer astrobiology winter school “ <i>Water on Earth and in Space</i> ”, UH, Honolulu, USA
2004	Supervised Caltech graduate student Colette Salyk for few months project (with G. Blake)
Jun-Sep 2003	Supervised Caltech undergraduate student Karin Öberg for SURF project (with G. Blake)
2002	Supervised Caltech graduate student Min Yang on one thesis chapter (with S. Lord, T. Phillips)
1997/1997	Taught exercises on “ <i>Interstellar Matter</i> ” at the universities of Amsterdam and Groningen, NL

INVITED PRESENTATIONS:

Aug 2016	Meeting on “Cosmic Dust”, Tohoku University, Sendai, Japan
Dec 2015	Kapteyn Astronomical Institute, University of Groningen, the Netherlands
Dec 2015	Leiden Observatory, Leiden University, the Netherlands
Dec 2015	Institute Anton Pannekoek, University of Amsterdam, the Netherlands
Dec 2015	Astronomy department, Radboud University, Nijmegen, the Netherlands
Sep 2015	Center for Star and Planet Formation, University of Copenhagen, Denmark
Sep 2015	Symposium to Honor Lou Allamandola’s Contributions to the Molecular Universe, Annapolis, MD, USA
Aug 2015	Focus Meeting 12 “Bridging Laboratory Astrophysics and Astronomy”, IAU GA 29, Honolulu, HI, USA
Apr 2015	Colloquium Astronomy Department, University of Missouri, Columbus, USA
Apr 2015	Seminar Astronomy Department, University of Missouri, Columbus, USA
Mar 2015	Symposium on “Carbon in the Galaxy”, ACS 249, Denver, CO, USA

- Feb 2015 Second Workshop on “Experimental Laboratory Astrophysics”, Poipu, Kauai, HI, USA  
Dec 2014 Solar System Exploration Seminar Series, NASA/Goddard, Greenbelt, MD, USA  
Apr 2014 STScI, Baltimore, MD, USA  
Sep 2013 Symposium on “New Chemical Frontiers in Solar System Exploration”, ACS 246, Indianapolis, IN, USA  
Feb 2013 First Workshop on “Experimental Laboratory Astrophysics”, Poipu, Kauai, HI, USA  
Oct 2012 Workshop on “Interstellar Matter”, Hokkaido University, Sapporo, Japan  
Jun 2012 Meeting-within-a-Meeting “Bridging Laboratory and Astrophysics”, AAS 220, Anchorage, AK, USA  
Oct 2010 Astronomy Department, University of Minnesota, Minneapolis, MN, USA  
Nov 2009 Physics and Astronomy Department, SUNY Stony Brook, NY, USA  
Dec 2007 Workshop “SOFIA’s 2020 Vision: Scientific and Technological Opportunities”, Pasadena, CA, USA  
Jun 2007 Greater IPAC Symposium Series, Pasadena, CA, USA  
Jun 2006 Workshop “Dust and Gas in ULIRGS”, Cornell University, Ithaca, NY, USA  
Feb 2005 Physics and Astronomy Department, Toledo University, OH, USA  
Feb 2005 STScI, Baltimore, MD, USA  
Mar 2005 CTIO, La Serena, Chile  
Nov 2003 ESO Workshop “High Resolution Infrared Spectroscopy in Astronomy”, Garching, Germany  
May 2003 Symposium “Astrophysics of Dust”, Estes Park, CO, USA  
Mar 2003 Astrophysics Group Jet Propulsion Laboratory, Pasadena, CA, USA  
Mar 2001 Tea Talk Astronomy Department, Caltech, Pasadena, CA, USA  
Oct 2000 Astronomy Department, Université Joseph Fourier, Grenoble, France  
Aug 2000 IAU-GA, JD1 on “Atomic and molecular data for astrophysics”, Manchester, UK  
Jun 1999 Lunch Talk Physics Department, Caltech, Pasadena, CA, USA  
Nov 1997 ISO–SWS Data Reduction Workshop, IPAC, CA, USA

#### GUEST APPOINTMENTS AND EXTENDED VISITS:

- Dec 2015 NOVA Speaker (Netherlands Research School in Astronomy)  
Nov 2015 Guest Researcher Leiden Observatory

#### AWARDS:

- Oct 2015 NASA Ames Honor Award (Commissioning EXES Spectrometer on SOFIA)  
Jul 2014 NASA Ames Honor Award (SOFIA Science Operations)  
Jun 2011 NASA Public Service Group Achievement Award (Support Herschel General Observers)  
May 2010 NASA Public Service Group Achievement Award (Support US Herschel Observers)  
May 2010 NASA Group Achievement Award (Herschel HIFI Integration and Testing)  
Jun 1997 Best Presentation at SRON Science Day (Dutch Space Research Organization)

#### PROFESSIONAL MEMBERSHIPS:

- 2013-now American Chemical Society (Physical Chemistry Division and Astrochemistry Subdivision)  
2013-now Caltech Alumni Association (life time member)  
2007-now American Astronomical Society (full member and member Laboratory Astrophysics Division)  
1992-now Nederlandse Astronomenclub (NAC; Dutch Astronomers Club)

OUTREACH:

Apr 2013 Speaker at career fair at AGBU Vatche and Tamar Manoukian High School (Pasadena, CA, USA)

ORGANIZATION OF MEETINGS:

Oct 2016 Co-organizer Workshop “Ice Age - The Era of the James Webb Space Telescope” (Leiden, The Netherlands)  
May 2015 Co-organizer of SOFIA Observer’s Workshop (Mountain View, CA, USA)  
2014-now Organizer weekly SOFIA Science Center colloquia and seminars  
Aug 2013 Organizer of Herschel/HIFI Data Processing Workshop for Archive Users (Pasadena, CA, USA)  
Dec 2012 Organizer of Herschel/HIFI Data Calibration and Processing Webinar (Pasadena, CA, USA)  
Sep 2012 Organizer of Herschel/HIFI Data Processing Workshop for US/OT2 observers (Pasadena, CA, USA)  
Mar 2012 Organizer of Herschel/HIFI Data Processing Webinar (Pasadena, CA, USA)  
Jul 2011 Organizer of Herschel/HIFI OT2 Observation Planning Workshop (Pasadena, CA, USA)  
Feb 2011 Organizer of Herschel/HIFI Data Processing Workshop for US/OT1 observers (Pasadena, CA, USA)  
Nov 2010 Local Organizing Committee Conference “Stormy Cosmos” (Pasadena, CA, USA)  
Apr 2009 Organizer of Herschel/HIFI Pre-Launch Data Processing Workshop (Pasadena, CA, USA)  
Nov 2008 Local Organizing Committee Conference “Bridging Gaps in Massive Star Evolution” (Pasadena, CA, USA)  
1999-2000 Organizer Caltech infrared/sub-millimeter group lunch talks

TECHNICAL SKILLS:

- Expert in analysis of low and high resolution infrared and (sub)-millimeter ground and space-based spectra of gas and solid state molecular transitions
- Interaction with laboratory astrophysics groups; analysis and modeling of interstellar ice analogs
- Experienced programmer in IDL and Jython languages, including development and testing software for reducing ISO-SWS, Spitzer-IRS, Keck-NIRSPEC and VLT-ISAAC infrared 1D and 2D echelle spectra
- Planning of astronomical software development and supervision of programmers
- Infrared and optical queue observing at the 8 meter Gemini-South telescope
- Operation of the Caltech Sub-millimeter Observatory, including receiver tuning, trouble shooting etc.
- Managing of large ISO and Spitzer satellite guaranteed time programs on protostellar objects
- Observer support Gemini mid-IR instruments, sub-mm single dish (CSO, Herschel/HIFI) and millimeter array (OVRO) telescopes
- Observer support SOFIA mid-IR spectrometers and associated software and pipeline development

CONTRIBUTED PRESENTATIONS AND POSTERS:

Oct 2016 Conference “The Local Truth: Star-Formation in the SOFIA Era”, Asilomar, CA, USA (Talk)  
Feb 2016 SPHEREx Science Community Workshop, Pasadena, CA, USA (Talk)  
Jan 2014 223rd meeting of American Astronomical Society, Washington, DC, USA (Poster)  
Mar 2012 Conference “From Atoms to Pebbles”, Grenoble, France (Poster co-I)  
Jan 2012 219th meeting of American Astronomical Society, Austin, TX, USA (Poster)  
Jan 2009 Great IPAC Symposium Series, Pasadena, CA, USA (Talk)  
Apr 2008 IPAC’s Astronomy 101 lecture series on “Astrochemistry 101”, Pasadena, CA, USA (Talk)  
Dec 2007 Conference “The Stormy Cosmos”, Pasadena, CA, USA (Poster)  
May 2006 Workshop “Making the Most of the Great Observatories”, Pasadena, CA, USA (Poster)  
Nov 2004 Symposium “The Spitzer Space Telescope: New Views of the Cosmos”, Pasadena, CA, USA (Talk)

Nov 2002	Star Formation Group NASA Ames, Mountain View, CA, USA (Talk)
Aug 2002	Conference “Chemistry as a Diagnostic of Star Formation”, University of Waterloo, Canada (Talk)
Oct 2001	Keck Science Meeting 2001, Pasadena, CA, USA (Talk)
Jan 2000	Joint Astronomy Center, Hilo, HI, USA (Talk)
Nov 1997	Astrophysics Group NASA Ames, Mountain View, CA, USA (Talk)
Oct 1997	Astronomy Department, University of Texas, Austin, TX (Talk)
Nov 1996	Astrophysics Group NASA Ames, Mountain View, CA, USA (Talk)
Nov 1996	Physics and Astronomy Department, RPI, Troy, NY (Talk)
Jul 1996	IAU Symposium 178 “Molecules in Astrophysics”, Leiden, the Netherlands (Poster)
Jul 1996	NATO school “The Cosmic Dust Connection”, Erice, Italy (Talk)

TELESCOPE TIME AWARDS:

Keck II	Nirspec grating and echelle	~ 30 nights	PI and co-I
Gemini N	Michelle 8 $\mu\text{m}$ spectroscopy	2 nights	PI
Gemini S	Phoenix 3-5 $\mu\text{m}$ spectroscopy	2 nights	PI
UKIRT	CGS4 4.7 $\mu\text{m}$ spectroscopy	1 night	PI
IRTF	SpeX 1-5 $\mu\text{m}$ spectroscopy	4 nights	co-I
Palomar 200"	SpectroCam 10 8-12 $\mu\text{m}$ spectroscopy	6 nights	PI
NRAO-12m	100 GHz heterodyne spectrometer	8 $\times$ 8 hours	PI
CSO	200-850 GHz heterodyne spectrometers	> 50 nights	PI and co-I
CSO	SHARCII 350 $\mu\text{m}$ camera	10 nights	PI and co-I
JCMT	200-650 GHz heterodyne spectrometers	15 nights	PI and co-I
OVRO MMA	50-100 GHz interferometry	16 tracks	PI
SMA	200 GHz interferometry	1 track	PI
Infrared Space Observatory	SWS 2-45 $\mu\text{m}$ spectrometer	20 hours	PI
Spitzer Space Telescope	IRS 5-35 $\mu\text{m}$ spectrometer	~100 hours	PI and co-I
Herschel Space Observatory	HIFI 480-1000 GHz spectrometer	4 hours	PI
Herschel Space Observatory	SPIRE 480-1000 GHz FTS spectrometer	9 hours	PI
VLT	ISAAC 1-5 $\mu\text{m}$ spectrometer	7 nights	PI and co-I
SOFIA	GREAT 1900 GHz heterodyne spectrometer	7 hours	co-I
SOFIA	FORCAST 5-40 $\mu\text{m}$ spectrometer	10 hours	co-I
SOFIA	EXES 4-30 $\mu\text{m}$ spectrometer	52 hours	PI and co-I

FUNDING AWARDS:

Jul 2016	NASA APRA “A Compact High-Resolution Grating Spectrograph for Spaceborne Infrared Astronomy”. (\$643,000 co-I)
Jul 2016	NASA APRA “Laboratory Investigations of Sulfur-bearing Interstellar Ice Analogs”. (\$350,000 collaborator)
Oct 2015	SOFIA Cycle 4 Program “High Resolution Spectroscopy of Circumstellar $\text{H}_2\text{O}$ ”. (\$150,000 co-I)
Oct 2015	SOFIA Cycle 4 Program “High Resolution Spectroscopy of Circumstellar $\text{SO}_2$ ”. (\$53,000 PI)
Nov 2014	NASA APRA “21 <sup>st</sup> -Century Spectroscopic Data for Determinations Interstellar Ice Abundances”. (\$350,000 collaborator)
Oct 2013	SOFIA Cycle 2 Program “High Resolution Spectroscopy of Circumstellar Methane”. (\$11,900 PI)
Sep 2012	SOFIA Cycle 1 Program “The Evolution of Preplanetary Matter”. (\$21,500 co-I)
Sep 2012	SOFIA Cycle 1 Program “The role of CII in current Spinning Dust Models”. (\$8,000 co-I)
Dec 2011	Herschel OT 2 Program “The Earliest Stages of Massive Star Formation”. (\$75,000 PI; priority 1)

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Feb 2008 Spitzer GO Program “*PAHs in the Icy Environments of YSOs*”. (\$125,000 co-I)  
May 2007 Spitzer GO Program “*Ice and Dust Properties in Large Clouds*”. (\$132,000 co-I)  
May 2007 Spitzer GO Program “*The Silicate-Extinction Relationship in Dense Cores*”. (\$72,000 co-I)  
Jun 2006 Spitzer GO Program “*Chemical and Dynamical Evolution in L1251B*”. (\$45,000 co-I)  
Jun 2005 Spitzer GO Program “*Ice Chemistry in IC 5146*”. (\$18,000 co-I)  
Jun 2005 Spitzer GO Program “*Molecular Composition and Chemistry of Isolated Dense Cores*”. (\$101,300 PI)  
May 2004 Spitzer GO Program “*Spectroscopy of Protostars in the Elephant Trunk Nebula*”. (\$50,300 co-I)  
May 2004 Spitzer GO Program “*Solid State Chemistry in Dense Clouds*”. (\$117,000 co-I)

PROFESSIONAL REFERENCES:

Prof. Dr. Alexander G. G. M. Tielens  
Leiden Observatory  
University of Leiden  
P. O. Box 9513  
2300 RA Leiden  
the Netherlands  
Tel.: INT+71-5278465  
E-mail: tielens@strw.leidenuniv.nl

Prof. Dr. Ewine F. van Dishoeck  
Max-Planck-Institut für Extraterrestrische Physik  
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Astrochemistry Laboratory, Mail Code 691  
NASA Goddard Space Flight Center  
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Dr. Cecilia Ceccarelli  
Institute de Planétologie et d'Astrophysique de Grenoble  
Observatoire de Grenoble  
414 rue de la Piscine - BP53  
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France  
Tel. INT+33-476514201  
E-mail: Cecilia.Ceccarelli@obs.ujf-grenoble.fr

## Publications in Refereed Journals

101. *Abundant Methanol Ice toward a Massive Young Stellar Object in the Central Molecular Zone*  
—D. An, K. Sellgren, **A. C. A. Boogert**, S. V. Ramrez, T.-S. Pyo, 2017, *ApJ*, 843, 36
100. *The chemical structure of the Class 0 protostellar envelope NGC 1333 IRAS 4A*  
—E. Koumpia, D. A. Semenov, F. F. S. van der Tak, **A. C. A. Boogert**, E. Caux, 2017, *A&A*, 603, 88
99. *On the nature of the enigmatic object IRAS 19312+1950: A rare phase of massive star formation?*  
—M. A. Cordiner, **A. C. A. Boogert**, S. B. Charnley, K. Justtanont, N. L. J. Cox, R. G. Smith, A. G. G. M. Tielens, E. S. Wirström, S. N. Milam, J. V. Keane, 2016, *ApJ*, 828, 51
98. *Spectroscopic Constraints on CH<sub>3</sub>OH Formation: CO Mixed with CH<sub>3</sub>OH Ices towards Young Stellar Objects*  
—E. M. Penteadó, **A. C. A. Boogert**, K. M. Pontoppidan, S. Ioppolo, G. A. Blake, & H. M. Cuppen, 2015, *MNRAS*, 454, 531
97. *Detection of Extremely Broad Water Emission from the Molecular Cloud Interacting Supernova Remnant G349.7+0.2*  
—J. Rho, J. W. Hewitt, **A. Boogert**, M. Kaufman, & A. Gusdorf, 2015, *ApJ*, 812, 44
96. *SOFIA/EXES Observations of Water Absorption in the Protostar AFGL 2591 at High Spectral Resolution*  
—N. Indriolo, D. A. Neufeld, C. N. DeWitt, M. J. Richter, **A. C. A. Boogert**, G. M. Harper, D. T. Jaffe, K. R. Kulas, M. E. McKelvey, N. Ryde, & W. Vacca, 2015, *ApJL*, 802, 14
95. *Observations of the Icy Universe*  
—**A. C. A. Boogert**, P. A. Gerakines, & D. C. B. Whittet, 2015, *Annual Review of Astronomy and Astrophysics*, 53, 541
94. *The SOFIA Observatory at the Start of Routine Science Operations: Mission Capabilities and Performance*  
—P. Temi, P. M. Marcum, E. Young, J. D. Adams, S. Adams, B.-G. Andersson, E. E. Becklin, **A. C. A. Boogert**, et al., 2014, *ApJS*, 212, 24
93. *Laboratory Determination of the Infrared Band Strengths of Pyrene Frozen in Water Ice: Implications for the Composition of Interstellar Ices*  
—E. E. Hardegree-Ullman, M. S. Gudipati, **A. C. A. Boogert**, H. Lignell, L. J. Allamandola, K. R. Stapelfeldt, & M. Werner, 2014, *ApJ*, 784, 172
92. *Deuterated water in the solar-type protostars NGC 1333 IRAS 4A and IRAS 4B*  
—A. Coutens, C. Vastel, S. Cabrit, C. Codella, L. E. Kristensen, C. Ceccarelli, E. F. van Dishoeck, **A. C. A. Boogert**, S. Bottinelli, A. Castets, E. Caux, C. Comito, K. Demyk, F. Herpin, B. Lefloch, C. McCoey, J. C. Mottram, B. Parise, V. Taquet, F. F. S. van der Tak, R. Visser, & U. A. Yildiz, 2013, *A&A*, 560, 39
91. *Infrared Spectroscopic Survey of the Quiescent Medium of Nearby Clouds: I. Ice Formation and Grain Growth in Lupus*  
—**A. C. A. Boogert**, J. E. Chiar, C. Knez, K. I. Öberg, L. G. Mundy, Y. J. Pendleton, A. G. G. M. Tielens, & E. F. van Dishoeck, 2013, *ApJ*, 777, 73
90. *In-orbit Performance of Herschel-HIFI*  
—P. R. Roelfsema, F. P. Helmich, D. Teyssier, V. Ossenkopf, P. Morris, M. Olberg, R. Shipman, C. Risacher, M. Akyilmaz, R. Assendorp, I. M. Avruch, D. Beintema, N. Biver, **A. Boogert**, & 85 coauthors, 2012, *A&A*, 537, 17
89. *CO Rovibrational Emission as a Probe of Inner Disk Structure*  
—C. Salyk, G. A. Blake, **A. C. A. Boogert**, & J. M. Brown, 2011, *ApJ*, 743, 112

88. *The Spitzer Ice Legacy: Ice Evolution from Cores to Protostars*  
—K. I. Oberg, **A. C. A. Boogert**, K. M. Pontoppidan, S. van den Broek, E. F. van Dishoeck, S. Bottinelli, G. A. Blake, & N. J. Evans II, 2011, *ApJ*, 740, 109
87. *Massive Young Stellar Objects in the Galactic Center. I. Spectroscopic Identification from Spitzer/IRS Observations*  
—D. An, S. V. Ramírez, K. Sellgren, R. G. Arendt, **A. C. A. Boogert**, Th. P. Robitaille, M. Schultheis, A. S. Cotera, H. A. Smith, & S. R. Stolovy, 2011, *ApJ*, 736, 133
86. *Ices in the Quiescent IC 5146 Dense Cloud*  
—J. E. Chiar, Y.J. Pendleton, L.J. Allamandola, **A.C.A. Boogert**, K. Ennico, T.P. Greene, T.R. Geballe, J.V. Keane, C.J. Lada, R.E. Mason, T.L. Roellig, S.A. Sandford, A.G.G.M. Tielens, M.W. Werner, D.C.B. Whittet, L. Decin, & K. Eriksson, 2011, *ApJ*, 731, 9
85. *Ice and Dust in the Quiescent Medium of Isolated Dense Cores*  
—**A. C. A. Boogert**, T. L. Huard, A. M. Cook, J. E. Chiar, C. Knez, L. Decin, G. A. Blake, A. G. G. M. Tielens, & E. F. van Dishoeck, 2011, *ApJ* 729, 92
84. *The 9.7 and 18  $\mu\text{m}$  Silicate Absorption Profiles towards Diffuse and Molecular Cloud Lines-of-sight*  
—J. M. van Breemen, M. Min, J. E. Chiar, L. B. F. M. Waters, F. Kemper, **A. C. A. Boogert**, J. Cami, L. Decin, C. Knez, G. C. Sloan, & A. G. G. M. Tielens, 2011, *A&A* 526, 152
83. *Nitrogen Hydrides in the Cold Envelope of IRAS 16293-2422*  
—P. Hily-Blant, S. Maret, A. Bacmann, S. Bottinelli, B. Parise, E. Caux, A. Faure, E. A. Bergin, G. A. Blake, A. Castets, C. Ceccarelli, J. Cernicharo, A. Coutens, N. Crimier, K. Demyk, C. Dominik, M. Gerin, P. Hennebelle, T. Henning, C. Kahane, A. Klotz, G. Melnick, L. Pagani, P. Schilke, C. Vastel, V. Wakelam, A. Walters, A. Baudry, T. Bell, M. Benedettini, **A. Boogert**, S. Cabrit, P. Caselli, C. Codella, C. Comito, P. Encrenaz, E. Falgarone, A. Fuente, P. F. Goldsmith, F. Helmich, E. Herbst, T. Jacq, M. Kama, W. Langer, B. Lefloch, D. Lis, S. Lord, A. Lorenzani, D. Neufeld, B. Nisini, S. Pacheco, T. Phillips, M. Salez, P. Saraceno, K. Schuster, X. Tielens, F. van der Tak, M. H. D. van der Wiel, S. Viti, F. Wyrowski, & H. Yorke, 2010, *A&A* 521, L52
82. *Polarisation Observations of VY Canis Majoris  $\text{H}_2\text{O}$  532-441 620.701 GHz maser Emission with HIFI*  
—M. Harwit, M. Houde, P. Sonnentrucker, **A. C. A. Boogert**, J. Cernicharo, E. de Beck, L. Decin, C. Henkel, R. D. Higgins, W. Jellema, A. Kraus, C. McCoey, G. J. Melnick, K. M. Menten, C. Risacher, D. Teyssier, J. E. Vaillancourt, J. Alcolea, V. Bujarrabal, C. Dominik, K. Justtanont, A. de Koter, A. P. Marston, H. Olofsson, P. Planesas, M. Schmidt, F. L. Schöier, R. Szczerba, & L. B. F. M. Waters, 2010, *A&A* 521, L51
81. *Detection of  $\text{OH}^+$  and  $\text{H}_2\text{O}^+$  towards Orion KL*  
—H. Gupta, P. Rimmer, J. C. Pearson, S. Yu, E. Herbst, N. Harada, E. A. Bergin, D. A. Neufeld, G. J. Melnick, R. Bachiller, W. Baechtold, T. A. Bell, G. A. Blake, E. Caux, C. Ceccarelli, J. Cernicharo, G. Chattopadhyay, C. Comito, S. Cabrit, N. R. Crockett, F. Daniel, E. Falgarone, M. C. Diez-Gonzalez, M.-L. Dubernet, N. Erickson, M. Emprechtinger, P. Encrenaz, M. Gerin, J. J. Gill, T. F. Giesen, J. R. Goicoechea, P. F. Goldsmith, C. Joblin, D. Johnstone, W. D. Langer, B. Larsson, W. B. Latter, R. H. Lin, D. C. Lis, R. Liseau, S. D. Lord, F. W. Maiwald, S. Maret, P. G. Martin, J. Martín-Pintado, K. M. Menten, P. Morris, H. S. P. Müller, J. A. Murphy, L. H. Nordh, M. Olberg, V. Ossenkopf, L. Pagani, M. Pérault, T. G. Phillips, R. Plume, S.-L. Qin, M. Salez, L. A. Samoska, P. Schilke, E. Schlecht, S. Schlemmer, R. Szczerba, J. Stutzki, N. Trappe, F. F. S. van der Tak, C. Vastel, S. Wang, H. W. Yorke, J. Zmuidzinas, **A. Boogert**, R. Güsten, P. Hartogh, N. Honingh, A. Karpov, J. Kooi, J.-M. Krieg, R. Schieder, & P. Zaal, 2010, *A&A* 521, L47
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## White Paper Contributions

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14. *Evolved Stars with Complex Atmospheres - the High Spectral Resolution, mid-IR View.* N. Ryde, J. Lambert, M. J. Richter, E. Josselin, G. M. Harper, K. Eriksson, **A. Boogert**, C. DeWitt, T. Encrenaz, T. Greathouse, D. Jaffe, K. Kulas, M. McKelvey, J. Najita, & W. Vacca, 2015, In: ASP Conf. Ser. 497, “Why Galaxies Care about AGB Stars III: A Closer Look in Space and Time.”, eds. F. Kerschbaum, R. F. Wing, and J. Hron (San Francisco: ASP), 67
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