

Publications

Matthew Richter

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- @1. 1992 Richter, Matthew, Gibor Basri, Saul Perlmutter and Carl Pennypacker. **Automated CCD Photometry of T Tauri Stars**. Publications of the Astronomical Society of the Pacific, 104: 1144-1151.
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- @2. 1995 Richter, Matthew J., James R. Graham, Gillian S. Wright, Douglas M. Kelly and John H. Lacy. **Detection of Pure Rotational H₂ Emission from the Supernova Remnant IC 443: Further Evidence for a Partially Dissociating J-Shock**. The Astrophysical Journal Letters, 449: L83-L86.
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- @6. 2002 Ryde, N., D.L. Lambert, M.J. Richter and J.H. Lacy. **Detection of Water Vapor in the Photosphere of Arcturus**. The Astrophysical Journal, 580: 447-458.
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- @10. 2003 Jaffe, D.T., Q. Zhu, J.H. Lacy, and [M. Richter](#). **Kinematics of Ultracompact HII Regions Revealed: High Spatial and Spectral Resolution Mapping of the 12.8 Micron [Ne II] Line in Monoceros R2.** The Astrophysical Journal, 596: 1053-1063.
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- @11. 2003 Roe, H.G., T.K. Greathouse, [M.J. Richter](#), and J.H. Lacy. **Propane on Titan.** The Astrophysical Journal, 597: L65-L68.
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- @13. 2004 Encrenaz, Th., B. Bézard, T.K. Greathouse, [M.J. Richter](#), J.H. Lacy, S.K. Atreya, A.S. Wong, S. Lebonnois, F. Lefèvre, and F. Forget. **Hydrogen Peroxide on Mars: Evidence for Spatial and Seasonal Variations.** Icarus, 170: 424-429.
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- @14. 2004 Ryde, N. and [M.J. Richter](#). **Nonthermal Mg I Emission at 12 Micron from Procyon.** The Astrophysical Journal, 611: L41-L43.
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- @17. 2005 Greathouse, Thomas K., John H. Lacy, Bruno Bézard, Julianne I. Moses, Caitlin A. Griffith, and [Matthew J. Richter](#). **Meridional Variations of Temperature, C₂H₂ and C₂H₆ Abundances in Saturn's Stratosphere at Southern Summer Solstice.** Icarus, 177: 18-31.

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- *@42. 2011 Greathouse, Thomas K., [Matthew Richter](#), John Lacy, Julianne Moses, Glenn Orton, Therese Encrenaz, H.B. Hammel, and Dan Jaffe. **A Spatially Resolved High Spectral Resolution Study of Neptune's Stratosphere**. Icarus, 214: 606-621.

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4. 1996 Richter, M.J. and J.H. Lacy: **Molecular Observations in the Mid-Infrared at High Resolution.** Molecules in Astrophysics: Probes and Processes Abstracts of IAU Symposium 176-.
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- # 25. 2005 Krasnopolsky, V.A., T.K. Greathouse, M.J. Richter, and J.H. Lacy: **A Sensitive Search for SO₂ in the Martian Atmosphere: Implications for Seepage and Origin of Methane.** AGU Spring Meeting, P23A-05.
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Carr, J.; Chun, M.; Telesco, C.; Honda, M.; Najita, J.; Onaka, T.; Sakon,
I.; Yamashita, T.: **Design concepts for a mid-infrared instrument
for the Thirty-Meter Telescope.** Proceedings of the SPIE, 7735:
77352C-77352C-12.

49. 2010 Greathouse, Thomas; Moses, Julianne; Encrenaz, Therese; Orton, Glenn; Hammel, Heidi; Richter, Matthew; Lacy, John: **Meridional Variations of Stratospheric Temperatures and Hydrocarbon Abundances in Neptune's Stratosphere**. EGU General Assembly, 12: 4705.
[View this Article](#)
50. 2011 Encrenaz, T.; Greathouse, T. K.; Richter, M. J.; Bézard, B.; Fouchet, T.: **A Search for SO₂ on Mars from Infrared Spectroscopy**. Fourth International Workshop on the Mars Atmosphere: Modelling and Observation, 315.
[View this Article](#)

Footnotes:

#1. This list has been renumbered since merit advancement to Associate Research Physicist, Step III, effective 7/10. Several items previously on the list were moved to the list of "Abstracts".

- #7. Previously #8.
- #8. Previously #9.
- #9. Previously #16.
- #10. Previously #17.
- #11. Previously #18.
- #12. Previously #19.
- #13. Previously #20.
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- #21. Previously #34.
- #22. Previously #35.
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- #24. Previously #37.
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- #26. Previously #40.
- #27. Previously #41.
- #28. Previously #49.
- #29. Previously #50.
- #30. Previously #51.
- #31. Previously #52.
- #32. Previously #53.
- #33. Previously #54.
- #34. Previously #55.
- #35. Previously #56.
- #36. Previously #57.
- #37. Previously #58.
- #38. Previously #67.
- #39. Previously #68.
- #40. Previously #70.
- #41. Previously #71.
- #42. Previously #72.
- #43. Previously #73.

Abstracts

- # 1. 1998 Hemenway, M.K., J.H. Lacy, D.R. Jaffe, M.J. Richter, K. Green, J.L. Harkrider, C.L. Lutsinger, E. Noid, R. Penn, L. Shepherd, R. Suder, M.J. Tykoski and M.J. Willis. **SOFIA Education/Public Outreach with the Echelon Cross Echelle Spectrograph (EXES)**. Bulletin of the American Astronomical Society, 30: 1291.
- # 2. 2001 Greathouse, T.K., C.A. Griffith, J.H. Lacy, M.J. Richter and B. Bezard. **Spectral Images of Jupiter's Stratosphere, its Temperature Field and Major Coolants**. AAS/Division of Planetary Sciences Meeting, 33: 11.25.
- # 3. 2001 Bezard, B., J.I. Moses, J. Lacy, T. Greathouse, M. Richter and C. Griffith. **Detection of Ethylene (C₂H₄) on Jupiter and Saturn in non-Auroral Regions**. AAS/Division of Planetary Sciences Meeting, 33: 22.07.
- # 4. 2002 Knez, C., A. Boonman, J.H. Lacy, N.J. Evans and M.J. Richter. **Observations of Infrared Molecular Lines Toward the Massive Protostar GL 2591**. Obse. AAS Meeting, 199: 134.10.
- # 5. 2002 Richter, M.J., D.T. Jaffe, G.A. Blake and J.H. Lacy. **Searching for Pure-Rotational H₂ Emission Near Young Stars**. AAS Meeting, 199: 60.05.
Since Appointment to Assistant Research Physicist, Step II: 8/02

- # 6. 2002 Spencer, J. R., K.L. Jessup, E. Lellouch, M. Richter, T. Greathouse, M. Lopez-Valverde, and J.M. Flaud. **Ground-Based Infrared Detection of Io's SO₂ Atmosphere**. Division of Planetary Science Meeting, 34: 40.01.
- # 7. 2002 Encrenaz, Th., T. Greathouse, B. Bezard, S.K. Atreya, A.S. Wong, M. Richter and J. Lacy. **A Stringent Upper Limit of H₂O₂ in the Martian Atmosphere**. Division of Planetary Science Meeting, 34: 15.02.
- # 8. 2003 Spencer, J. R., K.L. Jessup, G.E. Ballester, E. Lellouch, M. Lopez-Valverde, and M. Richter. **Io's Asymmetric, Sublimation-Dominated SO₂ Atmosphere**. AAS/Division for Planetary Sciences Meeting, 35: 0206.
- # 9. 2003 Greathouse, T., J. Moses, B. Bezard, C. Griffith, J. Lacy, C. Knez, and M. Richter. **Latitudinal variations of temperature, C₂H₂ and C₂H₆ in Saturn's stratosphere along with the detection of propane**. AAS/Division for Planetary Sciences Meeting, 35: 5007.
- # 10. 2003 Bezard, B., T. Greathouse, J. Lacy, M. Richter, and C.A. Griffith. **The D/H ratio in Jupiter and Saturn from High-resolution Spectral Observations near 8.6 μ m**. AAS/Division for Planetary Sciences Meeting, 35: 5001.

- # 11. 2003 Trafton, L.M., J.H. Lacy, M. Richter, and T.K. Greathouse. **Observations of Uranus' Pure-Rotational H₂ Quadrupole Lines**. AAS/Division for Planetary Sciences Meeting, 35: 4028.
- # 12. 2003 Roe, H.G., T.K. Greathouse, M.J. Richter, and J.H. Lacy. **Propane on Titan**. AAS/Division for Planetary Sciences Meeting, 35: 1201.
- # 13. 2004 Encrenaz, T., B. Bezard, T. Owen, S. Lebonnois, F. Lefevre, T.K. Greathouse, M.J. Richter, J.H. Lacy, and S.K. Atreya. **A Measurement of the CO₂ Isotopic Ratios in the Martian Atmosphere using High-Resolution Infrared Ground-Based Data**. AAS/Division for Planetary Sciences Meeting, 36: 2604.
- # 14. 2005 Harper, G.M., A. Brown, M.J. Richter, S. Holmes, and N. Ryde. **TEXES Observations of Betelgeuse: Dynamics and Thermodynamics of the Wind Acceleration Zone**. American Astronomical Society Meeting, 205: 5302.
- # 15. 2005 Trafton, L.M., J.H. Lacy, H. Roe, and M. Richter. **Detection of Cyanoacetylene on Titan During Southern Summer Near the Epoch of the Huygens Probe Descent**. AAS/Division for Planetary Sciences Meeting, 37: 4529.
- # 16. 2005 Greathouse, T.K., H.G. Roe, and M.J. Richter. **Evidence for a mesosphere on Saturn and the seasonal variation of temperature between 2002 and 2004 in Saturn's southern hemisphere**. AAS/Division for Planetary Sciences Meeting, 37: 2003.
- # 17. 2005 Bitner, M.~A., M.J. Richter, J.H. Lacy, D.T. Jaffe, T.K. Greathouse, J.E. Kessler-Silacci, and G.A. Blake. **TEXES Observations of Molecular Hydrogen Emission from AB Aurigae**. Bulletin of the American Astronomical Society, 37: 1163.
- # 18. 2005 Richter, M. J., J.H. Lacy, D.T. Jaffe, M.A. Bitner, T.K. Greathouse, and G.A. Blake. **The TEXES/IRTF H₂ Survey of Disk Sources**. Bulletin of the American Astronomical Society, 37: 1163.
- # 19. 2005 Berthoud, M.G., L.D. Keller, T.L. Herter and M. J. Richter. **Analysis of CO overtone emission from the inner disks of Herbig AeBe stars**. Bulletin of the American Astronomical Society, 37: 1224.
- # 20. 2005 Giveon, U., M.J. Richter, R.H. Becker, and R.L. White. **High Resolution Mid-Infrared Imaging of Radio Ultra-Compact HII Regions**. Bulletin of the American Astronomical Society, 37: 1303.
- # 21. 2005 Lacy, J. H., C. Knez, N. J. Evans, and M. J. Richter. **Infrared Molecular Spectroscopy of the KL Region in Orion**. Bulletin of the American Astronomical Society, 37: 1304.
- # 22. 2006 Greathouse, T. K., S.B. Strong, and M.J. Richter. **Observed Seasonal Variations of Temperature and Hydrocarbon Abundances in Saturn's**

Stratosphere between 2002 and 2005. Bulletin of the American Astronomical Society, 38: 500.

- # 23. 2006 Bitner, M., M.J. Richter, et al. **The TEXES/Gemini Survey for Protoplanetary Disk Gas.** Bulletin of the American Astronomical Society, 38: 912.
- # 24. 2006 Kruger, A.J., J.H. Lacy, D.T. Jaffe, M.J. Richter, T.K. Greathouse, M. Bitner, P. Segura, W. Moller, T.R. Geballe, and K. Volk. **Performance of the Visiting Instrument TEXES on Gemini North.** Bulletin of the American Astronomical Society, 38: 1109.
- # 25. 2006 Richter, M.J., et al. **Pure Rotational H₂ Emission from GSS 30 IRS 1.** Bulletin of the American Astronomical Society, 38: 1203.

Since Promotion to Associate Research Physicist, Step I: 7/08

- # 26. 2007 Trafton, Laurence M., J.H. Lacy, H.G. Roe, and M. Richter. **Analysis of Texes Observations of Titan's v₆ Band of Cyanoacetylene at 500 cm⁻¹.** American Astronomical Society, DPS meeting #39, #56.17; Bulletin of the American Astronomical Society, 39: 530.
- # 27. 2007 Bitner, Martin A., M.J. Richter, J.H. Lacy, D.T. Jaffe, T.K. Greathouse, G.J. Herczeg, C. Salyk, J. Najita, G.A. Blake, U. Gorti, D. Hollenbach, T. Currie, and J.S. Carr. **The TEXES Survey of H₂ in Protoplanetary Disks.** American Astronomical Society, AAS Meeting #211, #81.04; Bulletin of the American Astronomical Society, 39: 872.
- # 28. 2007 Hinkle, Kenneth H., L. Wallace, and M.J. Richter. **Ethylene in the Circumstellar Envelope of IRC+10216.** American Astronomical Society, AAS Meeting #211, #59.07; Bulletin of the American Astronomical Society, 39: 842.
- # 29. 2007 Knez, Claudia, J. Carr, J. Najita, J. Lacy, M. Richter, M. Bitner, N. Evans, II, E. van Dishoeck, and G. Blake. **TEXES High Resolution Observations of Water in a Proto-planetary Disk.** American Astronomical Society, AAS Meeting #211, #50.05; Bulletin of the American Astronomical Society, 39: 812.
- # 30. 2008 Encrenaz, Therese, T.K. Greathouse, M. Bitner, A. Kruger, J.H. Lacy, M.J. Richter, B. Bezard, T. Fouchet, F. Lefevre, F. Forget, and S.K. Atreya. **Ground-Based Infrared Observations of Water Vapor and Hydrogen Peroxide in the Atmosphere of Mars Near Summer Solstice.** American Astronomical Society, DPS meeting #40, #14.13; Bulletin of the American Astronomical Society, 40: 409.

Since Accelerated Merit Advancement to Associate Research Physicist, Step III: 7/10

31. 2009 Spencer, John R.; Greathouse, T. K.; Lacy, J. H.; Richter, M. J. **Changes in Io's Atmosphere in 2009: Atmospheric Inflation Near Perihelion?** AAS Division of Planetary Science Meeting #41, 41: 66.03.

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32. 2009 McKelvey, Mark; Richter, M.; Ennico, K.; Lacy, J. **An Update on the Echelon-cross-echelle Spectrograph for Sofia**. AAS Division of Planetary Sciences Meeting, 41: 46.07.
[View this Article](#)
33. 2010 Tsang, Constantine C. c.; Spencer, J. R.; Lellouch, E.; Richter, M. J.; Lopez-Valverde, M. A.; Greathouse, T. K. **Density and Temperature of Io's Atmosphere from Mid-Infrared Observations, 2001 to 2010: Continued Evidence for Inflation as Perihelion Approaches**. Bulletin of the American Astronomical Society, 42: 1024.
[View this Article](#)
34. 2010 Richter, Matthew; Seifahrt, A.; McKelvey, M.; Ennico-Smith, K.; Lacy, J. **Progress Report on the Echelon-cross-echelle Spectrograph for SOFIA**. Bulletin of the American Astronomical Society, 42: 400.
[View this Article](#)
35. 2010 Prilepina, Valentina; Rodriguez, N.; Kruger, A.; Richter, M. **A Test of Near Infrared Differential Photometry for Study of Extrasolar Planets**. Bulletin of the American Astronomical Society, 42: 329.
[View this Article](#)
36. 2010 M.J. Richter, M. McKelvey, A. Seifahrt, P. Zell, K. Ennico-Smith. **Status of the Echelon-cross-echelle spectrograph (EXES)**. online only.
[View this Article](#)
37. 2011 Packham, Christopher C.; Okamoto, Y. K.; Tokunaga, A.; Carr, J.; Chiba, M.; Chun, M.; Enya, K.; Fujiwara, H.; Fujiyoshi, T.; Honda, M.; Imanishi, M.; Ita, Y.; Kataza, H.; Kotani, T.; Izumiura, H.; Levenson, N. A.; Matsuo, T.; Matsuura, M.; Minezaki, T.; Najita, J.; Onaka, T.; Ootsubo, T.; Richter, M.; Sakon, I.; Takami, M.; Telesco, C. M.; Warner, C.; Wright, C. M.; Yamashita, T. **Michi: A MIR Instrument Concept for the TMT**. Bulletin of the American Astronomical Society, 43: 157.03.
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Footnotes:

#1. This list of "Abstracts" appears in the dossier for the first time after merit advancement to Associate Research Physicist, Step III, effective 7/10. Items footnoted below were previously included on the list of "Conference Proceedings".

#2. Previously appeared as #10 on the list of "Conference Proceedings for merit advancement to Associate Research Physicist, Step III, effective 7/10.

#3. Previously appeared as #11 on the list of "Conference Proceedings.

#4. Previously appeared as #12 on the list of "Conference Proceedings.

#5. Previously appeared as #13 on the list of "Conference Proceedings.

#6. Previously appeared as #14 on the list of "Conference Proceedings.

#7. Previously appeared as #15 on the list of "Conference Proceedings.

#8. Previously appeared as #23 on the list of "Conference Proceedings.

#9. Previously appeared as #24 on the list of "Conference Proceedings.

#10. Previously appeared as #25 on the list of "Conference Proceedings.

#11. Previously appeared as #26 on the list of "Conference Proceedings.

#12. Previously appeared as #29 on the list of "Conference Proceedings.

#13. Previously appeared as #30 on the list of "Conference Proceedings.

#14. Previously appeared as #39 on the list of "Conference Proceedings.

#15. Previously appeared as #42 on the list of "Conference Proceedings.

#16. Previously appeared as #43 on the list of "Conference Proceedings.

#17. Previously appeared as #44 on the list of "Conference Proceedings.

Presentations

Since Appointment to Assistant Research Physicist, Step II: 08/02

1. 2002 **Colloquium Presentation**, IGPP, Lawrence Livermore National Lab.
2. 2002 **Colloquium Presentation**, Dept of Space Sciences, Cornell University.
3. 2002 October, **Public Talk**, UC Davis Astronomy Club, Davis, CA.
4. 2003 **Invited Talk**, Center for Star Formation Studies, NASA/Ames.
5. 2003 **Colloquium Presentation**, Department of Physics, UC Davis.
6. 2003 **Colloquium Presentation**, Herzberg Institute for Astronomy, Victoria, BC.
7. 2003 **Invited Talk**, UC Observatory Infrared Working Group, Lick Obs, CA.
8. 2003 **Colloquium Presentation**, Keck Telescope Headquarters, Waimea, HI.

Since Merit Advancement to Assistant Research Physicist, Step III: 7/04

9. 2003 **Conference Presentation**, High Resolution IR Spectroscopy Workshop, ESO Headquarters, Garching, Germany.
10. 2003 April, **Public Talk**, UC Davis Astronomy Club, Davis, CA.
11. 2004 **Invited Talk**, Thirty Meter Telescope Science Advisory Committee, Tucson, AZ, January.
12. 2004 **Colloquium Presentation**, UC Berkeley Radio Lab Seminar, Berkeley, CA, March.
13. 2004 **Invited Talk**, TMT Instrumentation Group, Pasadena, CA, November.
14. 2004 **Colloquium Presentation**, University of Arizona Astronomy Department, Tucson, AZ, December.
15. 2004 May, **Public Talk**, Holmes Junior High Science Classes.
16. 2004 June, **Public Talk**, Star Party at Holmes Jr. High.
17. 2004 September, **Public Talk**, Sacramento Valley Astronomy Society, Sacramento, CA.
18. 2005 **Conference Presentation**, Winter School for Astrophysics, Aspen Institute, Aspen, CO.

Since Merit Advancement to Assistant Research Physicist, Step IV: 07/06

19. 2005 May, **Public Talk**, Science Fair at Chavez Elementary School.
20. 2006 **Conference Presentation**, TMT Instrument Feasibility Reviews.

21. 2006 **Colloquium Presentation**, SOFIA Headquarters, NASA/Ames, Mountain View, CA.
22. 2006 **Invited Talk**, TMT Conceptual Design Review, Pasadena, CA.
23. 2006 **Colloquium Presentation**, UNSW Physics Department, Sydney, Australia.
24. 2006 **Colloquium Presentation**, TEXES Observations with Gemini, Hilo, HI.
25. 2006 June, **Public Talk**, Chavez Elementary School 2nd grade.
26. 2006 August, **Public Talk**, Star Party at Chavez CDC camp out.
27. 2006 August, **Public Talk**, KXJZ radio regarding Pluto's status as a planet.
28. 2006 October, **Public Talk**, Mount Diablo Astronomical Society.
29. 2007 **Conference Presentations**, Gemini Science Meeting, Foz de Igaussu, Brazil.
30. 2007 **Conference Presentation**, Gemini Users Meeting, Foz de Igaussu, Brazil.
31. 2007 **Conference Presentation**, TMT Science Workshop, Irvine, CA.
32. 2007 February, **Public Talk**, Chavez Elementary School 3rd grade classes.
33. 2007 May, **Public Talk**, Chavez Elementary School Science Fair.
Since Promotion to Associate Research Physicist, Step I: 07/08

34. 2007 August, **Colloquium Presentation**, Uppsala University, Uppsala, Sweden.
35. 2007 October, **Cosmology Seminar**, UC Davis, Davis, CA.
36. 2008 **Public Talks**, Cesar Chavez Elementary 3rd and 5th grade classes (2-4 visits per year).
37. 2008 October, **Colloquium Presentation**, University of Nevada, Reno, Reno, NV.
38. 2009 **Public Talks**, Cesar Chavez Elementary 3rd and 5th grade classes (2-4 visits per year).
39. 2009 January, **Colloquium Presentation**, European Southern Observatory, Santiago, Chile.
40. 2009 January, **Colloquium Presentation**, Gemini South Observatory, La Serena, Chile.
41. 2009 March, **Public Talk**, Explorit Science Center, Davis, CA.

42. 2009 April, **Colloquium Presentation**, Herzberg Institute for Astronomy, Victoria, BC.
43. 2009 April, **Public Presentation**, Cesar Chavez Elementary School Science Fair.

Since Accelerated Merit Advancement to Associate Research Physicist, Step III: 7/10

44. 2009 November, **Public Talk**, Talking with Chavez Elementary (Davis, CA) 3rd grade classes regarding telescopes and motions in the sky.
45. 2009 December, **Public Talk**, Presentation to Chavez Elementary School (Davis, CA) 5th grade classes working through a scale model of the solar system.
46. 2010 February, **Invited Talk: "EXES: The Echelon-cross-echelle Spectrograph for SOFIA"**, High Resolution, Infrared Spectroscopy Workshop, National Astronomical Observatory of Japan, Tokyo, Japan.
47. 2010 February, **Invited Talk: "High Spectral Resolution in the mid-Infrared with TEXES and EXES"**, University of Tokyo, Tokyo, Japan.
48. 2010 March, **Colloquium Presentation: "High Resolution, Infrared Spectroscopy of Star Forming Regions: Recent Work and Future Prospects"**, Livermore National Lab/IGPP.
49. 2010 March, **Public Talk**, Speaking with Harper Jr High students about working as an astronomer.
50. 2010 April, **Public Talk**, Speaking with students and parents before star party for members of Chavez Elementary School.
51. 2010 May, **Public Talk**, Lead students through assembly and use of Gallileoscope telescope kits. 3 classes at Holmes Jr. High and 3 classes at Harper Jr. High.
52. 2010 September, **Contributed Talk: EXES on SOFIA**, The 5th Zermatt ISM Symposium, Zermatt, Switzerland.
53. 2011 March, **Invited Talk: High-Resolution, Mid-IR Spectroscopy of Star and Planet Forming Environments**, TMT Science and Instrumentation Workshop, Victoria, Canada.
54. 2011 May, **Public Talk**, Lead students through assembly and use of Gallileoscope telescope kits. 3 classes at Holmes Jr. High and 3 classes at Emerson Jr. High.