

# CURRICULUM VITAE

Donald W. McCarthy, Jr.

## Contact Information

Address: 681 W. Calle Alta Loma; Oro Valley, AZ 85737  
Cellphone: (520) 906-7503  
Email: [dwmccarthy@gmail.com](mailto:dwmccarthy@gmail.com) (personal) & [mccarthyd@arizona.edu](mailto:mccarthyd@arizona.edu) (UArizona)  
Web sites: Astronomy Camp <http://www.astronomycamp.org/>  
NIRCam/JWST education <https://lavinia.as.arizona.edu/~dmccarthy/GSUSA/index.html>

## Personal Synopsis

Dr. McCarthy pioneered high angular resolution at infrared wavelengths from both ground and space-based telescopes by developing new instrumentation, and techniques, for interferometry, speckle imaging, tip/tilt correction, and adaptive optics. With these tools, he was the first to directly detect low mass companions to nearby stars and also imaged the near-infrared emission from the Galactic Center source Sgr A\*, discovered planet-wide atmospheric waves on Pluto, and examined the surface characteristics of asteroids and Kuiper Belt Objects. He was the first to co-phase the six apertures of the MMT Observatory, a forerunner of the modern JWST mission. He served on the Science Teams (NICMOS; NIRCam) that built infrared cameras for the Hubble and James Webb Space Telescopes. He developed the PISCES near-IR, wide-field imager and the ARIES imager/spectrograph and personally supported over 600 observing nights for ~50 observers at Arizona observatories.

Dr. McCarthy has a passion for involving all age groups in astronomical research and hands-on, inquiry-based science education in both formal and informal settings. First supported by the Research Corporation, he collaborated with a high school teacher to bring authentic research into classrooms. He has also promoted techniques for improving “Quantitative Literacy” on a national level. Since 1989, his research-oriented Astronomy Camps have immersed teenage students, educators, schools, and adults from around the world at observatories on Mt. Lemmon and Kitt Peak. He directed the education program for the NIRCam project with NASA’s James Webb Space Telescope, creating a national partnership with the Girl Scouts of the USA. His most satisfying education publication was in the national magazine for the Alpha Chi Omega sorority, working with the ladies to connect them with their heritage in the night sky.

## Contents

<b>Education</b>		2
<b>Employment</b>		
<b>Education-specific Leadership</b>		
<b>Awards</b>		
<b>Visual Summaries:</b>	Publications, Presentations, Funding	3
<b>Publications:</b>		
Science (200)	Refereed (111); Non-refereed (89)	4
Education (43)		15
<b>Presentations:</b>		
Science (134)		17
Education (77)		25
<b>Research Funding:</b>		
Science	\$29,392,792 exclusive of NICMOS-HST, NIRCam-JWST	30
Education	\$5,921,929 exclusive of “Astronomy Camp”	32
<b>Graduate Students</b>		33
<b>Service:</b>	Department, University, National	
<b>Courses Taught &amp; Created</b>		34
<b>Education/Outreach Long Term Activities:</b>		35
University, Community, National		
“Astronomy Camp”		36
NIRCam/JWST Mission education program with the Girl Scouts of the USA		
<b>Personal:</b>	Military service; NASA Space Shuttle	

# CURRICULUM VITAE

Donald W. McCarthy, Jr.

## Education

1976 Ph.D. (Astronomy) The University of Arizona (advisor Dr. F. Low)  
1970 A.B. (Physics) Princeton University (advisor: Dr. D. Wilkinson)

## Employment

2022-now Designated Campus Colleague (Think Tank) - The University of Arizona

The University of Arizona - Steward Observatory

2023-now Outreach Instructional Specialist III

2022-2023 Designated Campus Colleague

2014-2022 University Distinguished Outreach Professor

1994-2022 Astronomer

1988 Associate Astronomer

1984 Assistant Astronomer

1976 Postdoctoral position

Pima Community College

2002 Adjunct Faculty

## Education-specific Leadership

2014-2020 Faculty Fellow (Coconino & Coronado Halls; Alpha Chi Omega sorority)

2014-2015 Honors Professor

2001-2014 Director NIRCam's education program for NASA's James Webb Space Telescope  
<https://lavinia.as.arizona.edu/~dmccarthy/GSUSA/index.html>

1994-2022 Lecturer Department of Astronomy – Univ. Arizona

1989-now Director "Astronomy Camp"

<http://www.astronomycamp.org/>

## Awards

2023 Klumpke-Roberts Award of the Astronomical Society of the Pacific

2022 Finalist - "Five Star Faculty" award administered by University Honors students

2021 2<sup>nd</sup> place in Annual Photo contest of Steward Observatory (Comet NEOWISE)

2020 Finalist - "Five Star Faculty" award administered by University Honors students

"Legacy Fellow" of the American Astronomical Society

2018 "Professor of the Semester" (Chi Omega sorority)

"Alumnus of the Year" for the Blake School

2016 "Mikelle Smith Omari-Tunkara Outstanding Faculty Fellow in a Residence Hall"

Guest Football Coach and Guest Basketball Coach for CATS Academics

2015 "Outstanding Faculty Partner," SAEM/AISS Impact Awards

2014 "University Faculty Outreach Award"

Ceremonial first-pitch selection for UA softball team vs. Oregon State (Mar 24)

2013 "Career Teaching Award" of the College of Science

"Tiger of the Week," Princeton University (January 23, 2013)

2012 "Education Award" of the American Astronomical Society

2005 Guest Football Coach at UCLA Homecoming game – CATS Academics

2003 "Maria and Eric Muhlman Award" – Astron. Soc. of the Pacific to the NICMOS Science Team

Asteroid 6688 Donmccarthy = 1981 ER<sub>17</sub>

*Citation: "Since the 1970s, Donald W. McCarthy (b. 1948) has been an instrumental part of astronomy education and research at the University of Arizona. He specializes in infrared astronomy and instrumentation and has been an inspiration to his students and to the hundreds who have participated in his Astronomy Camps."*

1996 "Distinguished Achievement in Science Education" of the College of Science

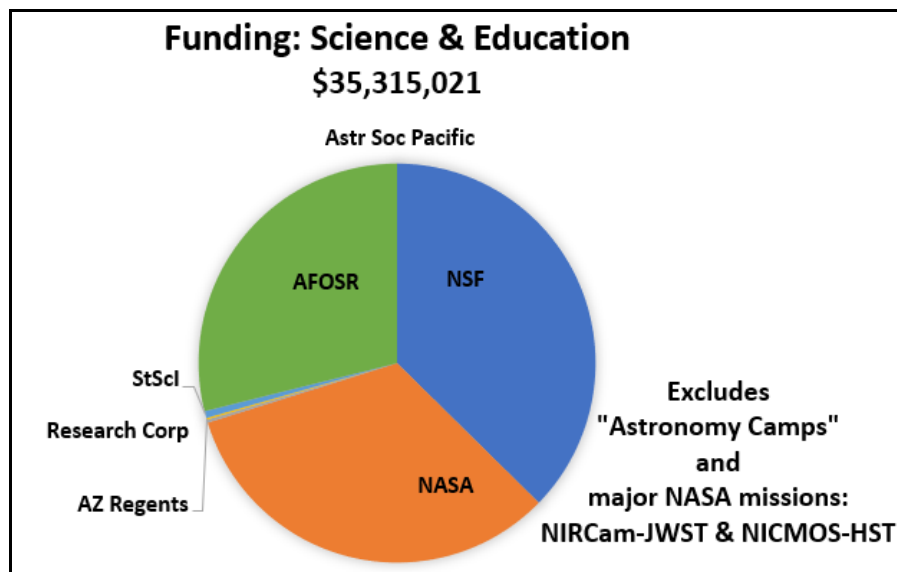
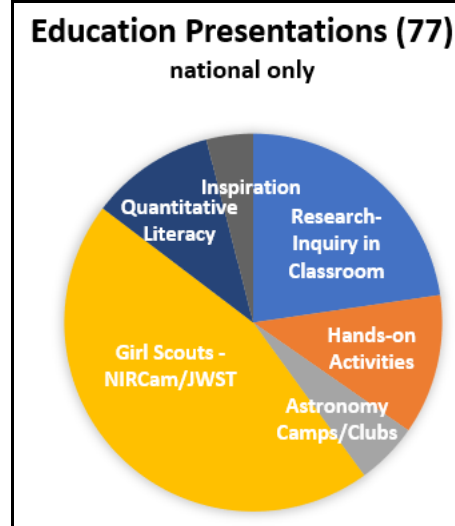
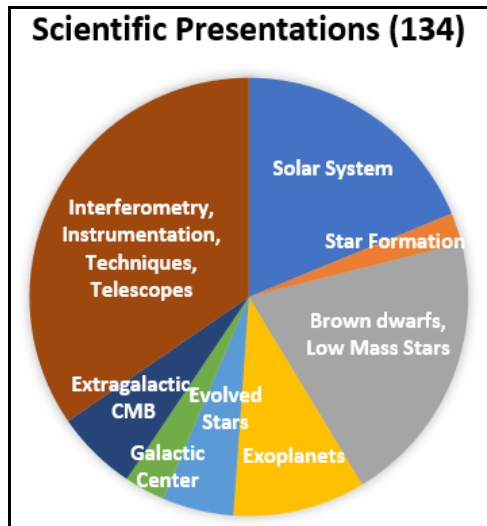
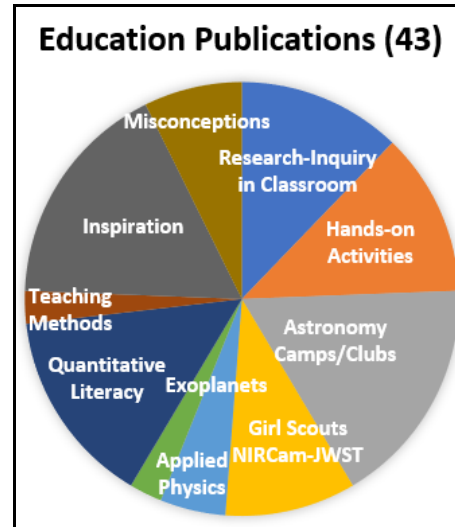
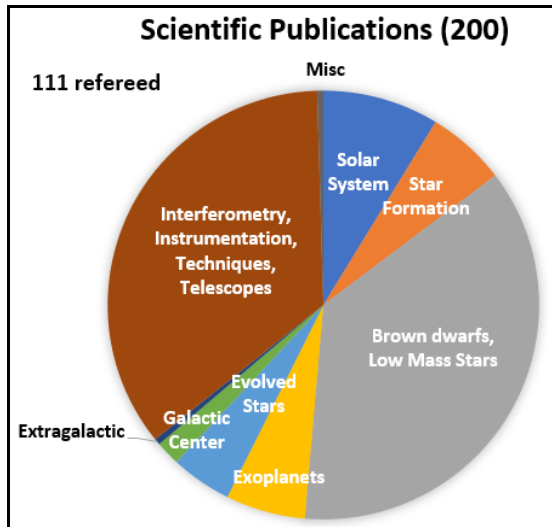
1993 The Metropolitan Education Commission Recognition (Astronomy Camp)

1992 Council, Advancement of Science Educ. (CASE), Silver Medal (Astronomy Camp)

1991 Finalist - "Five Star Faculty" award administered by University Honors students

1984 Honorable Mention award winner in Hughes Griffith Observer writing contest

## Visual Summaries: Publications, Presentations, Funding through 2022



## Publications

### Categorized by science & education (refereed, non-refereed, miscellaneous)

#### Scientific Publications (Refereed Journals)

111. *Carbon Monoxide Emission Lines Reveal and Inverted Atmosphere in the Ultra Hot Jupiter WASP-33b Consistent with an Eastward Hot Spot*, van Sluijs, L., Birkby J., Lothringer, J., Lee, E., Crossfield, I., Parmentier, V., Brogi, M., Kulesa, C., **McCarthy, D.**, and Charbonneau, D., 2023, MNRAS, 522, #2, 2145-2170.
110. *The James Webb Space Telescope Mission*, Gardner, J., **et al.**, 2023, PASP, 135, #1048, id 068001, 24 pp.
109. *NIRCam Performance on JWST In Flight*, Rieke, M., **et al.**, 2023, PASP, 135, # 1044, id 028001, 14 pp.
108. *The Absolute Age of the Globular Cluster M15: The Impact of High Resolution LBT/PISCES Images*, Monelli, M., Testa, V., Bono, G., Ferraro, I., Iannicola, G., Fiorentino, G., Arcidiacono, C., Massari, D., Boutsia, K., Briguglio, R., Carini, R., Close, L., Cresci, G., Esposito, S., Fini, L., Fumana, M., Guerra, J., Hill, J., Kulesa, C., Mannucci, F., **McCarthy, D.**, Pinna, E., Puglisi, A., Quiros-Pacheco, F., Ragazzoni, R., Riccardi, A., Skemer, A., and Xompero, M., 2015, AJ, 812, 12 pp.
107. *The M-dwarfs in Multiples (MinMs) Survey - I. Stellar Multiplicity Among Low-mass Stars Within 15 pc*, Ward-Duong, K., Patience, J., DeRosa, R., Bulger, J., Rajan, A., Goodwin, S., Parker, R., **McCarthy, D.**, and Kulesa, C., 2015, MNRAS, 449, Issue 3, p. 2618-2637
106. *Star and Jet Multiplicity in the High-mass Star Forming Region IRAS 05137+3919*, Cesaroni, R., Massi, F., Arcidiacono, C., Beltran, M.T., Persi, P., Tapia, M., Molinari, S., Testi, L. Busoni, L., Riccardi, A., Boutsia, K., Bisogni, S., **McCarthy, D.**, and Kulesa, C., 2015, Astronomy & Astrophysics, 581, A124, 46 pp.  
Also: *VizieR Online Data Catalog: SFR IRAS 05137+3919 star and jet multiplicity*
105. *A High Resolution Image of the Inner-shell of the P Cygni Nebula in the Infra-red [Fe II] Line*, Arcidiacono, C., Ragazzoni, R., Morossi, C., Franchini, M., Di Marcantonio, P., Kulesa, C., **McCarthy, D.**, Briguglio, R., Xompero, M., Quiros-Pacheco, F., Pinna, E., Boutsia, K., Paris, D., 2014, MNRAS, 443, 1142-1150.
104. *The VAST Survey - IV. A wide brown dwarf companion to the A3V star  $\zeta$  Delphini*, DeRosa, R., Patience, J., Ward-Duong, K., Vigan, A., Marois, C., Song, I., Macintosh, B., Graham, J., Doyon, R., Bessell, M., Lai, O., **McCarthy, D.**, and Kulesa, C., 2014, MNRAS, 445, 3694-3705.
103. *Adaptive Optics Images. III. 87 Kepler Objects of Interest*, Dressing, C., Adams, E., Dupree, A., Kulesa, C., and **McCarthy, D.**, 2014, AJ, 148, 15 pp.
102. *Variable Accretion Processes in the Young Binary-star System UY Aur*, Stone, J., Eisner, J., Salyk, C., Kulesa, C., and **McCarthy, D.**, 2014, AJ, 792, 9 pp.
101. *Adaptive Optics Images. II. 12 Kepler Objects of Interest and 15 Confirmed Transiting Planets*, Adams, E., Dupree, A.K., Kulesa, C., and **McCarthy, D.**, 2013, AJ, 146, 9.
100. *Submillimeter Observations of IRAS and WISE Debris Disk Candidates*, Bulger, J., Hufford, R., Schneider, A., Patience, J., Song, I., De Rosa, R.J., Rajan, A., Dowel, C.D., **McCarthy, D.**, and Kulesa, C. 2013, Astronomy & Astrophysics, 556, A119, 10 pp.
99. *A Close-up View of a Bipolar Jet: Sub-arcsecond Near-infrared Imaging of the High-mass Protostar IRAS 20126+4104*, Cesaroni, R., Massi, F., Arcidiacono, C., Beltran, M.T., **McCarthy, D.**, Kulesa, C., Boutsia, K., Paris, D., and Quiros-Pacheco, E., 2013, Astronomy and Astrophysics, 549, id.A146, 5 pp.
98. *LBT Observations of the HR 8799 Planetary System. First Detection of HR 8799e in H band*, Esposito, S. and **35 co-authors**, 2013, Astronomy and Astrophysics, 549, id.A52, 11 pp.
97. *Eleven New Heavily Reddened Field Wolf-Rayet Stars*, Smith, J.D.T., Cushing, M., Barletta, A., **McCarthy, D.**, Kulesa, C., and Van Dyk, S.D., 2012, AJ, 144, 166-175.
96. *Adaptive Optics Images of Kepler Objects of Interest*, Adams, E.R., Ciardi, D.R., Dupree, A.K., Gautier, T.N., Kulesa, C., and **McCarthy, D.**, 2012, AJ, 144, 42-50. Erratum: 2013, 146, 71.

95. *First Light LBT AO Images of HR 8799 bcde at 1.6 and 3.3  $\mu\text{m}$ : New Discrepancies Between Young Planets and Old Brown Dwarfs*, Skemer, A.J. and **47 co-authors**, 2012, ApJ, 753, 14-26.
94. *The Gray Needle: Large Grains in the HD 15115 Debris Disk from LBT/PISCES/Ks and LBT/LMIRcam/L' Adaptive Optics Imaging*, Rodigas, T.J. et al. and **54 co-authors**, 2012, ApJ, 752, 57-70.
93. *High-Resolution Images of Orbital Motion in the Orion Trapezium Cluster with the LBT AO System*, Close, L.M. et al. and **31 co-authors**, 2012, ApJ, 749, 180-191.
92. *Kepler-21b: A 1.6  $R_{\text{Earth}}$  Planet Transiting the Bright Oscillating F Subgiant HD 179070*, Howell, S. and **66 co-authors**, 2012, ApJ, 746, 123-151.
91. *Kepler-14b: A Massive Hot Jupiter Transiting an F Star in a Close Visual Binary*, Buchhave, L.A. and **48 co-authors**, 2011, ApJS, 197:3, 10 pp.
90. *Characteristics of Planetary Candidates Observed by Kepler. II. Analysis of the First Four Months of Data*, Boruki, W.J. and **70 coauthors**, 2011, ApJ, 736, 19-41.
89. *The High Albedo of the Hot Jupiter Kepler-7 b*, Demory, B-O. and **13 co-authors**, 2011, ApJ (Letters), 735, L12-17.
88. *A Ground-Layer Adaptive Optics System with Multiple Laser Guide Stars*, Hart, M., Milton, N.M., Baranec, C., Powell, K., Stalcup, T., **McCarthy, D.**, Kulesa, C., and Bendek, E., 2010, Nature, 466, pp. 727-729.
87. *Time-Variable Accretion in the TW Hya Star/Disk System*, Eisner, J., Doppmann, G., Najita, J., **McCarthy, D.**, Kulesa, C., Swift, B., and Teske, J., 2010, ApJL, 722, L28-32.
86. *Wide-Field Star Cluster Image Sharpening with Laser- Guided Adaptive Optics*, Hart, M., Milton, N. M., Baranec, C., Powell, K., Stalcup, T., **McCarthy, D.**, Kulesa, C., and Bendek, E., 2010, Nature, 466, 727-729.
85. *The Reddening Towards Cassiopeia A's Supernova: Constraining the  $^{56}\text{Ni}$  Yield*, Eriksen, K., Arnett, **D.**, **McCarthy, D.**, Young, P., 2009, ApJ, 697, 29-36.
84. *Buoyancy Waves in Pluto's High Atmosphere: Implications for Stellar Occultations*, Hubbard, W., **McCarthy, D.**, Kulesa, C., Benecchi, S., Person, M., Elliot, J., and Gulbis, A., 2009, Icarus, 204, 284-289.
83. *On-sky Wide-field Adaptive Optics Correction Using Multiple Laser Guide Stars at the MMT*, Baranec, C., Hart, M., N. Mark Milton, Stalcup, T., Powell, K., Snyder, M., Vaitheeswaran, V., **McCarthy, D.**, and Kulesa, C., 2009, ApJ, 693, 1814-1820.
82. *Long-wavelength Density Fluctuations Resolved in Pluto's High Atmosphere*, **McCarthy, D.**, Hubbard, W., Kulesa, C., Benecchi, S., Person, M., Elliott, J., and Gulbis, A. 2008, AJ, 136, 1519-1522.
81. *Waves in Pluto's Upper Atmosphere*, Person, M., Elliot, J., Gulbis, A. Zuluagal, C., Babcock, B., McKay, A., Pasachoff, J., Souza, S., Hubbard, W., Kulesa, C., **McCarthy, D.**, Benecchi, S., Levine, S., Bosc, A., Ryan, E., and Ryan, W., 2008, AJ, 136, 1510-1518.
80. *An Imaging Survey for Extrasolar Planets around 45 Close, Young Stars with the Simultaneous Differential Imager at the Very Large Telescope and MMT*, Biller, Beth A.; Close, Laird M.; Masciadri, Elena; Nielsen, Eric; Lenzen, Rainer; Brandner, Wolfgang; **McCarthy, Donald**; Hartung, Markus; Kellner, Stephan; Mamajek, Eric; Henning, Thomas; Miller, Douglas; Kenworthy, Matthew; Kulesa, Craig, 2007, ApJSS, 173, 143-165.
79. *Comet Hale-Bopp in Outburst: Imaging the Dynamics of Icy Particles with HST/NICMOS*, **D. W. McCarthy**, S. R. Stolovy, S. D. Kern, H. Campins, S. M. Larson, N. H. Samarasinha, and A. Ferro, 2007, Icarus, 189, 184-195.
78. IAUC 8825: (134340) [22334-2008/04-R1] Pluto, March 31, 2007
77. M.P.E.C. 2005-M61, Apollo asteroid discovery: 2005 MG5, June 28, 2005
76. M.P.E.C. 2005-M09, Apollo asteroid discovery: 2005 MA, June 19, 2005

75. *H $\alpha$ -Derived Star Formation Rates for Three  $z \sim 0.75$  EDisCS Galaxy Clusters*, Finn, R., Zaritsky, D., **McCarthy, D.**, Poggianti, B., Rudnick, G., Halliday, C., Milvang-Jensen, B., Pello, R., and Simard, L., 2005, *ApJ*, 630, 206-227.
74. *R- and J-band Photometry of Comets 2P/Encke and 9P/Tempel 1*, Hergenrother, C., Mueller, B., Campins, H., Samarasinha, N., and **McCarthy, D.**, 2006, *Icarus*, 181, 156-161.
73. *Deep Near-Infrared Observations of L 1014: Revealing the Nature of the Core and its Embedded Source*, Huard, T., Myers, P., Murphy, D., Crews, L., Lada, C., Bourke, T., Crapsi, A., Evans, N., **McCarthy, D.**, and Kulesa, C., 2006, *ApJ*, 640, 391-401.
72. *Simultaneous Visible and Near-infrared Time Resolved Observations of the Outer Solar System Object (29981) 1999 TD<sub>10</sub>*, Mueller, B., Hergenrother, C., Samarasinha, N., Campins, H., and **McCarthy, D.**, 2004, *Icarus*, 171, 506-515.
71. *H $\alpha$ -derived Star Formation Rates for the  $z = 0.84$  Galaxy Cluster Cl J0023+0423B*, R. Finn, D. Zaritsky, and **D. McCarthy**, 2004, *ApJ*, 604, 141-152.
70. *High Resolution Images of Orbital Motion in the Trapezium Cluster: First Scientific Results from the MMT Deformable Secondary Mirror Adaptive Optics System*, L. Close, F. Wildi, M. Lloyd-Hart, G. Brusa, D. Fisher, D. Miller, A. Riccardi, P. Salinari, **D. McCarthy**, R. Angel, R. Allen, H. Martin, R. Sosa, M. Montoya, M. Rademacher, M. Rascon, D. Curley, N. Siegler, and W. Duschl, 2003, *ApJ*, 599, 537-547.
69. *A Near-Infrared Wide-Field Proper Motion Search for Brown Dwarfs*, J. L. Hinz, **D. W. McCarthy**, D. A. Simons, T. J. Henry, J. D. Kirkpatrick, and P. C. McGuire, 2002, *AJ*, 123, 2027-2032.
68. *Precise Masses for Wolf 1062 AB From Hubble Space Telescope Interferometric Astrometry and McDonald Observatory Radial Velocities*, G. Benedict, B. McArthur, O. Franz, L. Wasserman, T. Henry, T. Takato, I. Strateva, J. Crawford, P. Ianna, **D. McCarthy**, E. Nelan, W. Jefferys, W. van Altena, P. Shelus, P. Hemenway, R. Duncombe, D. Story, A. Whipple, A. Bradley, and L. Fredrick, 2001, *A.J.*, 121, 1607-1613.
67. *Galaxies in the Fields of  $z \sim 1.5$  Radio-Loud Quasars*, P. Hall, M. Sawicki, P. Martini, R. Finn, C. Pritchett, P. Osmer, **D. McCarthy**, A. Evans, H. Lin, and F. Hartwick, 2001, *A. J.*, 121, 1840-1862.
66. *PISCES: A Wide Field 1-2.5 Micron Camera for Large Aperture Telescopes*, **D. McCarthy**, J. Ge, J. Hinz, R. Finn, and R. de Jong, 2001, *Pub. A.S.P.*, 113, 353-361.
65. *Compositional Variation on the Surface of Centaur 8405 Asbolus*, S.D. Kern, **D.W. McCarthy**, M.W. Buie, R.H. Brown, H. Campins, and M. Rieke, 2000, *Ap. J. (Letters)*, 542, L155-159.
64. *NICMOS/HST Post-Perihelion Images of Comet Hale-Bopp in Outburst*, **D. McCarthy**, S. Stolovy, S. Kern, G. Schneider, A. Ferro, H. Spinrad, J. Black, and B. Smith 1997, *Earth, Moon and Planets (1999)*, 78, 243-249.
63. *An Infrared Determination of the Reddening and Distance to Dwingeloo 1*, V. Ivanov, A. Alonso Herrero, M. Rieke, and **D. McCarthy** 1999, *A. J.*, 118, 826-830.
62. *The Optical Mass-Luminosity Relation at the End of the Main Sequence (0.08 to 0.20  $M_{\odot}$ )*, T. Henry, O. Franz, L. Wasserman, G. Benedict, P. Shelus, P. Ianna, D. Kirkpatrick, and **D. McCarthy** 1999, *Ap. J.*, 512, 864-873.
61. *Halo Characteristics and Their Influence on Companion Searches at the Starfire Optical Range*, P. Ryan, R. Fugate, R. Angel, **D. McCarthy**, S. Mohanty, and D. Sandler 1998, *Applied Optics*, 37, #30, 7035-7043.
60. *First Results of Nulling Interferometry at the Multiple Mirror Telescope*, P. Hinz, J.R.P. Angel, W. Hoffmann, **D. McCarthy**, P. McGuire, M. Cheselka, J. Hora, and N. Woolf 1998, *Nature*, 395, 251-253.
59. *First Astronomical Images Obtained with Adaptive Optics Using a Sodium Laser Guide Star*, M. Lloyd-Hart, J. Angel, T. Groesbeck, T. Martinez, B. Jacobsen, B. McLeod, **D. McCarthy**, E. Hooper, and E. Hege 1998, *Ap. J.*, 493, 950-954.
58. *The First Definitive Binary Orbit Determined with the HST Fine Guidance Sensors: Wolf 1062 (Gliese 748)*, Franz, O., Henry, T., Wasserman, L., Benedict, G., Ianna, P., Kirkpatrick, J., **McCarthy, D.**, Bradley, A., Duncombe, R., Fredrick, L., Hemenway, P., Jefferys, W., McArthur, B., Nelan, E., Shelus, P., Story, D., van Altena, W., and Whipple, A. 1997, *A. J.*, 116, 1432-1439.

57. *A Search for Companions to Nearby Southern M Dwarfs with Near-infrared Speckle Interferometry*, Ch. Leinert, T. Henry, A. Glindemann, and **D. McCarthy** 1997, *Astr. and Astrophys.*, 325, 159-166.
56. *Structure of Saturn's Mesosphere from the 28 Sgr Occultations*, W. B. Hubbard, C. Porco, D. Hunten, G. Rieke, M. Rieke, **D. McCarthy**, V. Haemmerle, J. Haller, B. McLeod, L. Lebofsky, R. Marcialis, J. Holberg, R. Landau, L. Carrasco, J. Elias, M. Buie, E. Dunham, S. Persson, T. Boroson, S. West, R. French, J. Harrington, J. Elliot, W. Forrest, J. Pipher, R. Stover, B. Sicardy, and A. Brahic 1997, *Icarus*, 130, 404-425.
55. *The Multiplicity of Pre-Main Sequence Stars in Southern Star Forming Regions*, A. Ghez, **D. McCarthy**, J. Patience, and T. Beck 1997, *Ap. J.*, 481, 378-385.
54. *The Peculiar Population of Hot Stars at the Galactic Center*, P. Tamblyn, G. Rieke, M. Hanson, L. Close, **D. McCarthy**, and M. Rieke 1996, *Ap. J.*, 456, 206-216.
53. *High-resolution V, I, and K-band Imaging of Faint Field Galaxies from the HST Medium-Deep Survey*, S. B. Mutz, R. A. Windhorst, D. Wittman, L. M. Close, and **D. W. McCarthy** 1997, *A. J.*, 113, 1537-1547.
52. *Speckle Imaging Measurements of the Relative Tangential Velocity of the Components of T Tauri Binary Stars*, A. M. Ghez, A. J. Weinberger, G. Neugebauer, K. Matthews, and **D. W. McCarthy** 1995, *A. J.*, 110, 753-765.
51. *General Relativistic Flux Modulations in the Galactic Center Blackhole Candidate Sgr A\**, J. Hollywood, F. Melia, L. M. Close, **D. W. McCarthy**, and T. A. DeKeyser 1995, *Ap. J. (Letters)* 1995, 448, L21-24.
50. *The Fate of Solid Matter Around HR 4796A*, M. Jura, A. Ghez, **D. W. McCarthy**, R. C. Smith, and P. G. Martin 1995, *Ap. J.*, 445, 451-456.
49. *Adaptive Optics Experiments Using Sodium Laser Guide Stars*, M. Lloyd-Hart, J. R. P. Angel, B. Jacobsen, D. Wittman, R. Dekany, **D. McCarthy**, E. Kibblewhite, W. Wild, B. Carter, and J. Beletic, 1995, *Ap. J.*, 439, 455-473.
48. *Infrared Photometry of the Black Hole Candidate Sgr A\**, L. M. Close, **D. W. McCarthy**, and F. Melia 1994, *Ap. J. (Letters)*, 439, 682-686.
47. *The Luminosity Function at the Faint End of the Main Sequence: Results of a Deep, Large-area, CCD Survey for Cool Dwarfs*, J. D. Kirkpatrick, J. T. McGraw, T. R. Hess, C. C. Dahn, H. C. Harris, J. Liebert, and **D. W. McCarthy** 1994, *The Ap.J. Suppl. Series*, 94, 749-788.
46. *Ross 614B: A Redetermination of the Masses One Orbit Later*, D. S. Johnson, T. J. Henry, and **D. W. McCarthy** 1994, *A. J.*, 107, 1551-1555.
45. *High Angular Resolution Images of Vesta at 1.65  $\mu\text{m}$* , **D. W. McCarthy, Jr.**, J. D. Freeman, and J. D. Drummond 1994, *Icarus*, 108, 285-297.
44. *High Resolution Imaging with an Adaptive Secondary Mirror*, L. Close and **D. W. McCarthy, Jr.** 1994, *Pub. A.S.P.*, 106, 77-86.
43. *Low-Mass Companions to Nearby Stars: Spectral Classification and Its Relation to the Stellar/Substellar Break*, J. D. Kirkpatrick and **D. W. McCarthy**, *Ap.J.* 1994, 107, 333-349.
42. *Progress in Diffraction-Limited Imaging at the Multiple Mirror Telescope*, M. Lloyd-Hart, R. Dekany, D. Sandler, D. Wittman, R. Angel, and **D. McCarthy** 1994, *J. Opt. Soc. Am. A*, 11, 846-857.
41. *Adaptive Optics for Diffraction-Limited Infrared Imaging with 8-Meter Class Telescopes*, D. G. Sandler, S. Strahl, J. R. P. Angel, and **D. McCarthy** 1994, *J. Opt. Soc. Am. A*, 11, 925-945.
40. *Mass Luminosity Relation for Red Dwarf Stars*, T. J. Henry and **D. W. McCarthy** 1993, *A. J.*, 106, 773-789.
39. *The Performance of Partial Adaptive Correction at the Multiple Mirror Telescope*, J. C. Christou and **D. W. McCarthy** 1993, *Pub. A.S.P.*, 105, 1322-1329.

38. *New Confidence Limits for Object Parameters Estimated from High Resolution Astronomical Images*, J. Freeman and **D. McCarthy** 1993, *J. Opt. Soc. Am. A*, submitted.
37. *The Occultation of 28 Sgr by Saturn: Saturn Pole Position and Astrometry*, W. B. Hubbard, C. C. Porco, D. M. Hunten, G. H. Rieke, M. J. Rieke, **D. W. McCarthy**, V. Haemmerle, R. Clark, E. P. Turtle, J. Haller, B. McLeod, L. A. Lebofsky, R. Marcialis, J. Holmberg, R. Landau, L. Carrasco, J. Elias, M. W. Buie, S. E. Perrson, T. Boroson, S. West, and D. J. Mink 1993, *Icarus*, 103, 215-234.
36. *Infrared Imaging of  $\mu$  Cas B Using Rapid Image Motion Compensation*, **D. McCarthy**, T. Hancock, J. Freeman, B. McLeod, M. Lloyd-Hart, D. Colucci, P. Wizinowich, M. Clampin, D. Golimowski, and S. Durrance, 1993, *A. J.*, 105, 652-659.
35. *Direct 75 Milliarcsecond Images from the MMT with Adaptive Optics*, M. Lloyd-Hart, R. Dekany, B. McLeod, D. Wittman, D. Colucci, **D. McCarthy**, and R. Angel 1992, *Ap. J. (Letters)*, 402, L81-84.
34. *Robust Regression Applied to Optimization of Object Parameters from Astronomical Speckle Interferometry*, J. D. Freeman, T. J. Henry, and **D. W. McCarthy** 1992, *J. Opt. Soc. Am. A*, 9, 2149-2158.
33. *First Results of an On-line Adaptive Optics System with Atmospheric Wavefront Sensing by an Artificial Neural Network*, M. Lloyd-Hart, P. Wizinowich, B. McLeod, D. Wittman, D. Colucci, R. Dekany, **D. McCarthy**, J. R.P. Angel, and D. Sandler 1992, *Ap. J. (Letters)*, 390, L41-44.
32. *Adaptive Optics for Array Telescopes Using Piston and Tilt Wavefront Sensing*, P. Wizinowich, B. McLeod, M. Lloyd-Hart, J. R. P. Angel, D. Colucci, R. Dekany, **D. McCarthy**, D. Wittman, and I. Scott-Fleming 1992, *Applied Optics*, 31, 6036-6046.
31. *A Nearby Solar-Type Star with a Low Mass Companion: New Sensitivity Limits Reached Using Speckle Imaging*, T. J. Henry, **D. W. McCarthy**, J. D. Freeman, and J. C. Christou 1991, *A. J.*, 103, 1369-1372.
30. *Red/Infrared Observations of Wolf 424 AB: Are the Components Substellar?*, T. J. Henry, D. S. Johnson, **D. W. McCarthy**, and J. D. Kirkpatrick 1991, *Astr. and Astrophys.*, 254, 116-120.
29. *A Standard Stellar Spectral Sequence in the Red/Infrared: Classes K5 to M9*, J. D. Kirkpatrick, T. J. Henry, and **D. W. McCarthy** 1991, *The Ap. J. Suppl. Series*, 47, 417-440.
28. *Global High Resolution Imaging of Hotspots on Io*, B. A. McLeod, **D. W. McCarthy, Jr.**, and J. D. Freeman 1991, *A. J.*, 102, 1485-1489.  
Photo reprinted in the 1995 book "The Giant Planet Jupiter" by John H. Rogers, Cambridge University Press
27. *The Low Mass Companion of Gliese 22A: First Results of the Steward Observatory Infrared Speckle Camera*, **D. W. McCarthy, Jr.**, T. J. Henry, B. A. McLeod, and J. C. Christou 1991, *A. J.*, 101, 214-219.
26. *The Nearby Binary Gliese 866 A/B: Orbit, Masses, Temperature, and Composition*, Ch. Leinert, M. Haas, F. Allard, R. Wehrse, **D. W. McCarthy**, H. Jahreiss, and Ch. Perrier 1990, *Astron. Astrophys.*, 236, 399-408.
25. *A Systematic Search for Brown Dwarfs Orbiting Nearby Stars*, T. J. Henry, and **D.W. McCarthy** 1990, *Ap. J.*, 350, 334-347.
24. *Astrometric-Spectroscopic Binary Star Orbits, III: Alpha Ophiuchi and Delta Aquilae*, K. W. Kamper, D. Leggett, and **D. W. McCarthy** 1989, *A. J.*, 98, 686-691.
23. *Brightness Ratio of Components of Ross 614AB in Infrared from Combined Shift-and-Add and Zero-and-Add Processing of Speckle Images*, B. L. K. Davey, W. J. Cocke, R. H. T. Bates, **D. W. McCarthy**, J. C. Christou, and M. L. Cobb 1989, *A. J.*, 98, 1040-1048.
22. *The Very Low Mass Triple System: G208-44AB and G208-45*, **D. W. McCarthy**, T. J. Henry, T. A. Fleming, R. A. Saffer, J. W. Liebert, and J. C. Christou 1988, *Ap. J.*, 333, 943-952.
21. *The Nearby Low Mass Astrometric Binary LHS 1047*, P. A. Ianna, J. R. Rohde, and **D. W. McCarthy** 1988, *A. J.*, 95, 1226-1230.



20. *Application of Bispectrum Analysis for Phase Retrieval of One-Dimensional Infrared Speckle Data*, J. D. Freeman, J. C. Christou, F. Roddier, **D. W. McCarthy**, and M. L. Cobb 1988, *J.O.S.A.*, 5, 406-415.
19. *Direct Infrared Observations of the Very Low Mass Object Gliese 623B*, **D. W. McCarthy**, and T. J. Henry 1987, *Ap. J. (Letters)*, 319, L93-98.
18. *Image Selection and Binning for Improved Atmospheric Calibration of Infrared Speckle Data*, J. C. Christou, **D. W. McCarthy**, and M. L. Cobb 1987, *A. J.*, 94, 516-522.
17. *Gliese 866: A New, Low Mass Binary in the Solar Neighborhood*, **D. W. McCarthy**, M. L. Cobb, and R. G. Probst 1987, *A. J.*, 93, 1535-1538.
16. *The Multiple Mirror Telescope as a Phased Array Telescope*, E. K. Hege, J. M. Beckers, P. A. Strittmatter, and **D. W. McCarthy** 1985, *Appl. Opt.*, 24, 2565-2576.
15. *Infrared Detection of a Close Cool Companion to Van Biesbroeck 8*, **D. W. McCarthy**, R. G. Probst, and F. J. Low 1985, *Ap. J. (Letters)*, 290, L9-13.
14. *Mass Measurements of the Components of  $\mu$  Cas*, **D. W. McCarthy** 1984, *A. J.*, 89, 433-435.
13. *Astrometric and Infrared Speckle Analysis of the Visually Unresolved Binary BD +41°328*, S. L. Lippincott, D. Braun, and **D. W. McCarthy** 1982, *Pub. A. S. P.*, 95, 271-274.
12. *Infrared Detection of the Low Mass Companion to Zeta Aquarii B*, **D. W. McCarthy**, F. J. Low, S. G. Kleinmann, and D. V. Arganbright 1982, *Ap. J. (Letters)*, 257, L75-78.
11. *Triple Structure of Source Three in the Monoceros R2 Molecular Cloud*, **D. W. McCarthy** 1982, *Ap. J. (Letters)*, 257, L93-97.
10. *Infrared Speckle Interferometry of the Nucleus of NGC 1068*, **D. W. McCarthy**, F. J. Low, S. G. Kleinmann, and F. C. Gillett 1982, *Ap. J. (Letters)*, 257, L7-11.
9. *One-Dimensional Infrared Speckle Interferometry*, R. R. Howell, **D. W. McCarthy**, and F. J. Low 1981, *Ap. J. (Letters)*, 251, L21-25.
8. *Spatial Spectra of IRC +10°216 from 2.2 to 20  $\mu$ m: Deviations From Spherical Symmetry*, **D. W. McCarthy**, R. Howell, and F. J. Low 1980, *Ap. J. (Letters)*, 235, L27-31.
7. *Apparent Variation in the Diameter of Omicron Ceti at 10.2  $\mu$ m*, **D. W. McCarthy**, R. Howell, and F. J. Low 1978, *Ap. J. (Letters)*, 223, L113-116.
6. *Design and Operation of an Infrared Spatial Interferometer*, **D. W. McCarthy**, F. J. Low, and R. Howell 1977, *Opt. Eng.*, 16, 569-574.
5. *Angular Diameter Measurements of Alpha Ori, VY CMa, IRC +10°216 at 8.3, 10.2, and 11.1  $\mu$ m*, **D. W. McCarthy**, F. J. Low, and R. Howell 1977, *Ap. J. (Letters)*, 214, L85-89.
4. *Initial Results of Spatial Interferometry at 5  $\mu$ m*, **D. W. McCarthy** and F. J. Low 1975, *Ap. J. (Letters)*, 202, L37-40. Reprinted in *Selected Reprints on Long-Baseline Stellar Interferometry*, (Ed. P. Lawson), SPIE Milestone Series, 1997.
3. *IR Spectrophotometry of Jupiter and Saturn*, A. B. Binder and **D. W. McCarthy**, 1973, *A. J.*, 78, 939-950.
2. *Mars: The Lineament Systems*, A. B. Binder and **D. W. McCarthy** 1972, *Science*, 176, 279-281.
1. *The Infrared Spectral Albedo of Uranus*, A. B. Binder and **D. W. McCarthy** 1972, *Ap. J. (Letters)*, 171, L1-3.

## Scientific Publications (Non-Refereed)

### significant papers at major conferences invited papers, discovery telegrams, etc.

89. *Status Update for MAPS, the MMT AO ExoPlanet Characterization System*, Morzinski, K., **et al.**, 2022, Adaptive Optics Systems VIII, part of SPIE Astronomical Telescopes + Instrumentation (Montreal, Canada), Proc. SPIE, [12185](#), id 121856S.
88. *Spectroscopic classification of AT2016cvw as a normal Type Ia supernova*, Leonard, D., **et al.**, 2016, The Astronomer's Telegram, #9173.
87. *Spectroscopic classification of AT2016cvw as a normal Type Ia supernova*, Leonard, D. **et al.**, 2016, The Astronomer's Telegram, #9171
86. *Supernova 2015Q in NGC 3888 = Psn J11473508+5558147*, Wiggins, P., et al, 2015, Central Bureau Electronic Telegrams, No. 4128, #1.
85. *ASASSN-15lu is a Type Ia supernova*, Leonard, D., **et al.**, 2015, The Astronomer's Telegram, #7707.
84. *Optical spectroscopy of PSN J15044078+1237436*, Leonard, D., et al., 2015, The Astronomer's Telegram, #7690.
83. *PSN J11473508+5558147 is a Type Ib supernova near maximum light*, Leonard, D., 2015, The Astronomer's Telegram, #7680.
82. *ASASSN-15lo is a post-maximum normal Type Ia supernova*, Leonard, D., 2015, The Astronomer's Telegram, #7675.
81. *Spectroscopic observations of PSN J12355235+2755563: Another likely LBV outburst*, Sheehan, P. **et al.**, 2014, The Astronomer's Telegram, #6303.
80. *Spectroscopic classification of CSS140620:171007+610911 and correction of ATel #6523*, Leonard, D., **et al.**, 2014, The Astronomer's Telegram, #6264.
79. *Spectroscopic classification of CSS140620:171007+610911*, Leonard, D., et al., 2014, The Astronomer's Telegram, #6263.
78. *Supernova 2014bv in NGC4386 = PSNJ12243098+7532086*, 2014, Central Bureau Electronic Telegrams, 3911.
77. *Supernova 2014bu in NGC 694 = PSN J01505845+2159598*, 2014, Central Bureau Electronic Telegrams, 3910.
76. *Spectroscopic classifications of ASASSN-14co and PSN J01505845+2159598*, Leonard, D., **et al.**, 2014, The Astronomer's Telegram, #6255.
75. *Supernova 2013dq in UGC 525 = Psc J00513484+2943149*, Howerton, S., et al., 2013, Central Bureau Electronic Telegrams, 3573, 1.
74. *Spectroscopy of PSN J00513484+2943149 in UGC 525*, Rachubo, A.A. **et al.**, 2013, The Astronomer's Telegram, #5176.
73. *Supernova 2013do in UGC 12137 = Psn J22395067+3812443*, Elenin, L. **et al.**, 2013, Central Bureau Electronic Telegrams, 3571, 2.
72. *Science Opportunities with the Near-IR camera (NIRCam) on the James Webb Space Telescope (JWST)*, Beichman, C.A., Rieke, M. Eisenstein, D., Greene, T., Krist, J., **McCarthy, D.**, and Meyer, M., 2012, Space Telescopes and Instrumentation 2012: Optical, Infrared, and Millimeter Wave. Proc. SPIE, [8442](#), id. 84422N-84422N-11.
71. *Operation of the Adaptive Optics System at the Large Binocular Telescope Observatory*, Miller, D.L. and **19 co-authors**, 2012, Adaptive Optics Systems III. Proc. SPIE, [8447](#), id. 84472T-84472T-5.
70. *Obituary: Frank J. Low (1933-2009)*, **McCarthy, D.**, 2011, Bull. AAS, [43](#), id. #017.
69. *High-Resolution Images of Kepler Objects of Interest (KOI)*, Adams, E.R., Dupree, A.K., **McCarthy, D.**, and Kulesa, C., 2011, EPSC-DPS Joint Meeting 2011, held 2-7 October 2011 in Nantes, France. <http://meetings.copernicus.org/epsd-dps2011>, p.262

68. *Latest GLAO Results and Advancements in Laser Tomography Implementation at the 6.5 m MMT Telescope*, Bendek, E., Hart, M., Powell, K., Vaitheeswaran, V., **McCarthy, D.** and Kulesa, D., 2011, *Astronomical Adaptive Optics Systems and Applications IV*. Edited by Tyson, Robert K.; Hart, Michael. Proc. SPIE, 8149, pp. 814907-814907-11.
67. *Latest Ground Layer Adaptive Optics Results and Advancements in Laser Tomography Implementation at the 6.5 m MMT Telescope*, Bendek, E., Hart, M., Powell, K., Vaitheeswaran, V., **McCarthy, D.** and Kulesa, D., Second International Conference of Adaptive Optics for Extremely Large Telescopes, Sept. 2011, Online at <http://ao4elt2.lesia.obspm.fr>, id.62
66. *Supernova 2011dw in Pgc 58436 = Psn J16313945+4129229*, Pelloni, A. and Princeton University, Central Bureau Electronic Telegrams, 2756, 1, June 2011.
65. *Supernova 2011dv in NGC 6078 = Psn J16120400+142330*, Leonard, D.A., and **42 coauthors**, Central Bureau Electronic Telegrams, 2755, 1, June 2011.
64. *Supernova 2011dv in NGC 6078 = Psn J16120400+142330*, Ciabattari, E. and **48 coauthors**, Central Bureau Electronic Telegrams, 2755, 1, June 2011.
63. *Supernova 2011dn in UGC 11501 = Psn J19583553+0236163*, Leonard, D.C., and **41 coauthors**, Central Bureau Electronic Telegrams, 2746, 2, June 2011.
62. *Supernova 2011dn in UGC 11501 = Psn J19583553+0236163*, Koff, R.A., and **41 coauthors**, Central Bureau Electronic Telegrams, 2746, 2, June 2011.
61. *Spectroscopy of PSN J19583553+0236163*, Leonard, D.C., and **41 coauthors**, The Astronomer's Telegram, #3450, June 2011.
60. *P445.3 (Pluto) Occultation V1.0*, Benecchi, S., **McCarthy, D.**, Kulesa, C. Hubbard, W., Person, M., Elliot, J., and Gulbis, A., 2010, NASA Planetary Data System, EAR-P-I0962/I0964-5-BENECCHIOCC-V1.0.
59. *Status of the 6.5 m MMT telescope Laser Adaptive Optics System*, Bendek, E., Hart, M., Powell, K., Milton, N., Vaitheeswarana, V., **McCarthy, D.**, Kulesa, C., Callahan, S., Garcia, A., Ammons, S., Adaptive Optics Systems II. Edited by Ellerbroek, Brent L.; Hart, Michael; Hubin, Norbert; Wizinowich, Peter L., 2010, Proc. SPIE, 7736, pp. 773600-773600-12.
58. *Multi-Band Filters for Near-Infrared Astronomical Applications*, Rhoads, J., Malhotra, S., Scowen, P., Probst, R., **McCarthy, D.**, 2010, *Ground-based and Airborne Instrumentation for Astronomy III*. Edited by McLean, Ian S.; Ramsay, Suzanne K.; Takami, Hideki. Proc. SPIE, 7735, pp. 77356C-77356C-9.
57. *Commissioning of the MMT Ground-layer and Laser Tomography Adaptive Optics Systems*, Milton, M., Lloyd-Hart, M., Baranec, C., Stalcup, T., Powell, K., **McCarthy, D.**, Kulesa, C., and Hege, K., 2008, *Adaptive Optics Systems (Proc. SPIE)*, eds. N. Hubin, C. E. Max, and P. L. Wizinowich, vol. 7015, p. 701522-1.
56. *Contrast limits with the Simultaneous Differential Extrasolar Planet Imager (SDI) at the VLT and MMT*, Biller, B., Close, L., Masciadri, E., Lenzen, R., Brandner, W., **McCarthy, D.**, Henning, T., Nielsen, E., Hartung, M., Kellner, S., Geissler, K., and Kasper, M., 2006, Proc. SPIE (*Advances in Adaptive Optics II*. Edited by Ellerbroek, B., Bonaccini C.), 6272, p. 74-83.
55. *Telescope to Observe Planetary Systems (TOPS): a High Throughput 1.2-m Visible Telescope with a Small Inner Working Angle*, Guyon, O., Angel, J.R.P., Bowers, C., Burge, J., Burrows, A., Codona, J., Greene, T., Iye, M., Kasting, J., Martin, H., **McCarthy, D.**, Meadows, V., Meyer, M., Pluzhnik, E., Sleep, N., Spears, T., Tamura, M., Tenerelli, D., Vanderbei, R., Woodgate, B., Woodruff, R., and Woolf, N., 2006, Proc. SPIE (*Space Telescopes and Instrumentation I: Optical, Infrared, and Millimeter*. Edited by Mather, J., MacEwen, H., de Graauw, M.), 6265, 12 pages.
54. *A Survey of the Closest, Youngest Stars with the Simultaneous Differential Extrasolar Planet Imager (SDI) at the VLT and MMT*, B. Biller, L. Close, R. Lenzen, W. Brandner, **D. McCarthy**, E. Masciadri, T. Henning, E. Nielsen, and M. Hartung, 2005, *Protostars & Planets V*, LPI Contribution No. 1286, p. 8429.
53. *The IMF in Extreme Star-Forming Environments: Searching for Variations vs. Initial Conditions*, 2005, M. Andersen, M. Meyer, J. Greissl, B. Oppenheimer, M. Kenworthy, **D. McCarthy**, and H. Zinnecker, "Massive Star Birth: A Crossroads of Astrophysics," IAU Symp. #227, 285-290.

52. *Gould's Belt to Starburst Galaxies: IMF in Extreme Star Formation Regions*, M. Meyer, J. Griessl, M. Kenworthy, and **D. McCarthy**, 2004, in *The IMF@50: A Conference in Honor of Edwin Salpeter*, (eds. E. Corvelli, F. Palla, and H. Zinnecker), *Astrophysics and Space Science Library*, 327, 245.
51. *Large Binocular Telescope Interferometer: The Universal Beam Combiner*, Hinz, P., Connors, T., McMahon, T., Cheng, A., Peng, C., Hoffmann, W., **McCarthy, D.**, and Angel, R., 2004, *New Frontiers in Stellar Interferometry*, *Proc. S.P.I.E.*, 5491, (ed. Traub, W.), pp. 7878.
50. *Scientific Results from the MMT Natural Guide Star Adaptive Optics System*, M. Kenworthy, D. Miller, G. Brusa, P. Hinz, D. Fisher, M. Lloyd-Hart, F. Wildi, **D. McCarthy**, D. Curley, C. Kulesa, P. Young, B. Oppenheimer, W. Liu, M. Meyer, and J. Greissl, 2004, *Advancements in Adaptive Optics*, *Proc. S.P.I.E.*, 5490, (ed. D. Bonaccini, B. Ellenbroek, and R. Ragazzoni), pp. 351-358.
49. *Suppressing Speckle Noise for Simultaneous Differential Extrasolar Planet Imaging (SDI) at the VLT and MMT*, B. Biller, L. Close, R. Lenzen, W. Brandner, **D. McCarthy**, E. Nielsen, and M. Hartung, 2004, *Advancements in Adaptive Optics*, *Proc. S.P.I.E.*, 5490, (ed. D. Bonaccini, B. Ellenbroek, and R. Ragazzoni), pp. 389-397.
48. *Near-Infrared Flux Limits for Sgr A\* Based on NICMOS Data*, S. Stolovy, F. Melia, **D. McCarthy**, and F. Yusef-Zadeh, 2003, *Astron. Nachr.*, 324, No. S1, special supplement "The Central 300 Parsecs of the Milky Way", eds. A. Cotera, H. Falcke, T. Geballe, S. Markoff.
47. *The Large Binocular Telescope Interferometer*, P. Hinz, J. Angel, **D. McCarthy**, W. Hoffmann, and C. Peng, 2003, *Proc. S.P.I.E.*, 4838, 108-112.
46. *NGST NIRCcam Scientific Program and Design Concept*, M. Rieke, S. Baum, C. Beichman, D. Crampton, R. Doyon, D. Eisenstein, T. Greene, K. Hodapp, S. Horner, D. Johnstone, L. Lesyna, S. Lilly, M. Meyer, P. Martin, **D. McCarthy**, G. Rieke, T. Roellig, J. Stauffer, J. Trauger, and E. Young, 2003, *Proc. S.P.I.E.*, 4850, 478-485.
45. *MEDI: An Instrument for Direct-Detection Survey for Massive Extra-Solar Planets*, M. Freed, L. Close, M. Rademacher, **D. McCarthy**, and N. Siegler, 2003, "Scientific Frontiers in Research on Extrasolar Planets" (eds. D. Deming and S. Seager), *ASP Conference Series*, 294, pp. 99-102.
44. *A 3-5 Micron Camera for Extrasolar Planet Searches*, A. Heinze, P. Hinz, and **D. McCarthy**, 2003, *Proc. S.P.I.E.*, 4839, 1154-1164.
43. *MEDI: An Instrument for Direct-Detection Survey for Massive Extra-Solar Planets*, M. Freed, L. Close, M. Rademacher, **D. McCarthy**, and N. Siegler, 2003, *Proc. S.P.I.E.*, 4839, 1132-1141.
42. *A Cryogenic, 1-5 Micron Atmospheric Dispersion Corrector for Astronomical Adaptive Optics*, R. Sarlot and **D. McCarthy**, 2001, *Proc. S.P.I.E.*, 4441, 72-78.
41. *BLINC: A Testbed for Nulling Interferometry in the Thermal Infrared*, P. Hinz, J.R.P. Angel, N. Woolf, N., W. Hoffmann, and **D. McCarthy**, 2000, *Optical and IR Telescope Instrumentation and Detectors*, *Proc. S.P.I.E.*, 4006, 349-353.
40. *Multi-Object Near-IR Grism Spectroscopy with the 6.5-m MMT*, R.A. Finn and **D.W. McCarthy**, 2000, *Optical and IR Telescope Instrumentation and Detectors*, *Proc. S.P.I.E.*, 4008, 759-766.
39. *Cryogenic Beam Combiner for Very Low Background 2-20 Micron Interferometry on the 22.8-m Large Binocular Telescope*, **D.W. McCarthy**, E. Sabatke, R. Sarlot, P. Hinz, and J. Burge, 2000, *Interferometry in Optical Astronomy*, *Proc. S.P.I.E.*, 4006, 659-672.
38. *The Optical Design of ARIES: The New Near-Infrared Science Instrument for the Adaptive f/15 Multiple Mirror Telescope*, 1999, *Proc. S.P.I.E.*, 3779, R. Sarlot, **D. McCarthy**, J. Burge, and J. Ge, 274-283.
37. *Large Ground-Based Telescopes with High Order Adaptive Optics for Imaging Faint Objects and Extra-Solar Planets*, M. Langlois, D. Sandler, and **D. McCarthy**, *Proceedings of the NATO Advanced Study Institute on "Planets Outside the Solar System: Theory and Observation"*, J.M. Mariotti and D. M. Alloin (eds), *NATO ASI Series, Series C: Mathematical and Physical Sciences*, 1999, 297-305.

36. *Infrared Adaptive Optics System for the 6.5m MMT: System Status and Prototype Results*, M. Lloyd-Hart, R. Angel, D. Sandler, T. Barrett, P. McGuire, T. Rhoadarmer, D. Bruns, S. Miller, **D. McCarthy**, M. and Cheselka, 1998, Adaptive Optics System Technologies, Proc.S.P.I.E., 3353, (ed. D. Bonaccini & R. Tyson), 82-93.
35. *First Results of Nulling Interferometry with the Multiple Mirror Telescope*, P. Hinz, R. Angel, W. Hoffmann, **D. McCarthy**, P. McGuire, M. Cheselka, J. Hora, and N. Woolf 1998, Astronomical Interferometry, Proc. S.P.I.E., 3350, (ed. R. Reasenberg), 439-447.
34. *High Frequency Wavefront Structure and its Effects on the Detection of Faint Companions Using Adaptive Optics*, M. Langlois, D. Sandler, P. Ryan, and **D. McCarthy** 1998, Adaptive Optics System Technologies, Proc. S.P.I.E., 3353, (ed. D. Bonaccini & R. Tyson), 189-200.
33. *ARIES: Arizona Infrared Imager and Echelle Spectrograph*, **D. McCarthy**, J. Burge, R. Angel, J. Ge, R. Sarlot, B. Fitz-Patrick, and J. Hinz 1998, Infrared Astronomical Instrumentation, Proc. S.P.I.E., 3354, (ed. A. Fowler), 750-754.
32. *Final Review of Adaptive Optics Results from the Pre-Conversion MMT*, M. Lloyd-Hart, R. Angel, T. Groesbeck, P. McGuire, D. Sandler, **D. McCarthy**, T. Martinez, B. Jacobsen, T. Roberts, P. Hinz, J. Ge, B. McLeod, G. Brusa, K. Hege, and E. Hooper 1997, Adaptive Optics and Applications, Proc. S.P.I.E., 3126, (ed. R.K. Tyson & R.Q. Fugate) , 44-54.
31. *Adaptive Optics Spectroscopy: Preliminary Theoretical Results*, J. Ge, R. Angel, D. Sandler, C. Shelton, **D. McCarthy**, and J. Burge 1997, Adaptive Optics and Applications, Proc. S.P.I.E., 3126, (ed. R.K. Tyson & R.Q. Fugate), 343-354.
30. *Halo Properties and Their Influence on Companion Searches at the Starfire Optical Range*, P. Ryan, R. Angel, **D. McCarthy**, L. Close, S. Mohanty, and R. Fugate 1996, Adaptive Optics (Optical Society of America Meeting, July 8-12, Maui, HI), to appear in the 1996 OSA Technical Digest Series vol. 13, p. 118.
29. *Sodium Laser Guide Star Observations with FASTTRAC II*, T. Groesbeck, M. Lloyd-Hart, R. Angel, **D. McCarthy**, G. Brusa, P. Gray, B. McLeod, S. Mohanty, T. Martinez, B. Jacobsen, D. Wittman, P. Ryan, D. Bruns, and D. Sandler 1996, Adaptive Optics (Optical Society of America Meeting, July 8-12, Maui, HI), to appear in the 1996 OSA Technical Digest Series vol. 13, p. 31-33.
28. *An Introduction to FASTTRAC II and the Latest Results from FASTTRAC I: 0.2" Imaging of the Galactic Center*, L. Close, **D. McCarthy**, G. Brusa, M. Lloyd-Hart, R. Angel, P. Gray, B. McLeod, T. Groesbeck, D. Wittman, P. Ryan, T. Martinez, J. Hughes, M. Cheselka, B. Jacobsen, D. Bruns, and D. Sandler 1995, Adaptive Optics: Topical Meeting (Oct. 2-6, 1995; Technical University of Munich, Garching), 291-297.
27. *An Adaptive Beam-Combining Mirror for the MMT*, L. Close, G. Brusa, D. Bruns, M. Lloyd-Hart and **D. McCarthy** 1995, Adaptive Optical Systems and Applications, Proc. S.P.I.E. , 2534, (ed. R. K. Tyson and R. Q. Fugate), 105-115.
26. *FASTTRAC II Near-IR Adaptive Optics System for the Multiple Mirror Telescope: Description and Preliminary Results*, P. M. Gray, M. Lloyd-Hart, J. R. P. Angel, **D. McCarthy**, D. Sandler, T. Martinez, L. M. Close, G. Brusa, D. Bruns, B. McLeod, P. T. Ryan, T. Groesbeck, D. Wittman, B. P. Jacobsen, J. Hughes, M. Hunten, and M. Cheselka 1995, Adaptive Optical Systems and Applications, Proc. S.P.I.E. , 2534, (ed. R. K. Tyson and R. Q. Fugate), 2-16.
25. *Close Companions to T Tauri Stars: Abundant and Perturbing*, A. Ghez, **D. McCarthy**, A. Weinberger, G. Neugebauer, and K. Matthews 1994, in "Interacting Binaries", ASP Conference Series (ed. A. Shafter), 56, 221-227.
24. *A Near-Infrared Speckle Imaging Study of T Tauri Stars*, A. M. Ghez, **D. W. McCarthy**, A. J. Weinberger, G. Neugebauer, and K. Matthews 1994, Exp. Astr., 3, 297-300.
23. *Preliminary Closed-Loop Results from an Adaptive Optics System Using a Sodium Resonance Guide Star*, M. Lloyd-Hart, R. Angel, B. Jacobsen, D. Wittman, **D. McCarthy**, E. Kibblewhite, B. Carter, and W. Wild 1994, Adaptive Optics in Astronomy; Astronomical Telescopes and Instrumentation for the 21st Century, Proc. S.P.I.E., 2201, 364-372.
22. *High Resolution Infrared Imaging Utilizing a Tip-Tilt Secondary Mirror*, L. M. Close and **D. W. McCarthy** 1994, Adaptive Optics in Astronomy; Astronomical Telescopes and Instrumentation for the 21st Century, Proc. S.P.I.E., 2201, 447-457.
21. *First Light on an Edge-Matched Segmented Adaptive Mirror at the McMath Telescope*, A. D. Gleckler, R. Angel, **D. McCarthy**, P. Wizinowich, B. Ulich, and K. P. Pflibsen 1994, Adaptive Optics in Astronomy; Astronomical Telescopes and Instrumentation for the 21st Century, Proc. S.P.I.E., 2201, 394-406.

20. *Diffraction-limited K-band Imaging at the Multiple Mirror Telescope with Adaptive Optics*, M. Lloyd-Hart, D. Colucci, D. Wittman, A. Ghez, **D. McCarthy**, R. Dekany, and R. Angel 1993, *Active and Adaptive Optical Components and Systems II*, Proc. S.P.I.E., 1920, 338-347.
19. *Infrared Imaging Using a Tip-Tilt Secondary Mirror*, L. M. Close and **D. W. McCarthy** 1993, *Active and Adaptive Optical Components and Systems II*, Proc. S.P.I.E., 1920, 353-363.
18. *The Murky Depths of the Main Sequence: Nearby Speckled Dwarfs and Elusive Brown Beasts*, T. J. Henry and **D. W. McCarthy**, April 1992, IAU Colloq. #135, *Complementary Approaches to Double & Multiple Star Research*, Pine Mountain (Georgia), Astronomical Society of the Pacific Conference Series, 32, 10-20.
17. *High Resolution Imaging at the Multiple Mirror Telescope Using Adaptive Optics*, M. Lloyd-Hart, P. Wizinowich, D. Wittman, D. Colucci, B. McLeod, R. Dekany, R. Angel, **D. McCarthy**, M. Rieke, M. McCaughrean 1992, *Atmospheric Propagation and Remote Sensing* (A. Kohnle and W. B. Miller, editors), Proc. S.P.I.E., 1688, 442-452.
16. *Neural Network Adaptive Optics for the Multiple Mirror Telescope*, P. Wizinowich, M. Lloyd-Hart, B. McLeod, D. Colucci, R. Dekany, D. Wittman, R. Angel, **D. McCarthy**, and B. Hulburd 1991, *Active & Adaptive Optical Systems* (M. Ealey, editor), Proc. S.P.I.E., 1542, 148-158.
15. *An Infrared Array Camera for Interferometry with the Cophased Multiple Mirror Telescope*, **D. W. McCarthy**, B. McLeod, and D. Barlow 1990, Proc. S.P.I.E., 1237, 496-507.
14. *Diffraction-limited Imaging with the Coherently Cophased MMT*, E. K. Hege, **D. W. McCarthy**, J. C. Hebden, S. B. Shaklan, and J. C. Christou 1988, Proc. S.P.I.E., 828, 20-26.
13. *A Comparison of Phase Retrieval Algorithms Applied to Infrared Astronomical Speckle Data*, J. D. Freeman, J. C. Christou, **D. W. McCarthy**, and M. L. Cobb 1988, Proc. S.P.I.E., 828, 40-46.
12. *Application of Bispectrum Analysis to Infrared Astronomical Speckle Data*, J. C. Christou, J. D. Freeman, F. Roddier, **D. W. McCarthy**, and M. L. Cobb 1988, Proc. S.P.I.E., 828, 32-39.
11. *A Comparative Study of Deconvolution Techniques for Infrared Speckle Interferometry*, M. L. Cobb and **D. W. McCarthy** 1986, Proc. S.P.I.E., 627, 758-765.
10. *Applications of Image Sharpness Criteria in Infrared Speckle Interferometry*, **D. W. McCarthy** and M. L. Cobb 1986, Proc. S.P.I.E., 627, 797-804.
9. *The Search for Substellar Companions to Nearby Stars: Infrared Imaging From the Ground and From Space*, **D. W. McCarthy**, 1986, in *Astrophysics of Brown Dwarfs*, Ed. M. C. Kafatos, R. S. Harrington, and S. P. Maran (Cambridge University Press), p. 9-19.
8. *Infrared Speckle Interferometry: A Sensitive Technique for Physical Measurements of Unseen Companions to Nearby Stars*, **D. W. McCarthy** 1984, in *Astrometric Techniques* (IAU Symposium No. 109), Ed. H. K. Eichhorn and R. J. Leacock, 309-319.
7. *The Versatile Array*, N. J. Woolf, J. R. P. Angel, and **D. W. McCarthy** 1983, Proc. S.P.I.E., 444, 78-84.
6. *The Use of the Multiple Mirror Telescope as a Phased Array*, J. M. Beckers, E. K. Hege, F. J. Low, **D. W. McCarthy**, and P. A. Strittmatter 1983, Proc. S.P.I.E., 440, 136-142.
5. *Near-Infrared Imaging of Unseen Companions to Nearby Stars*, **D. W. McCarthy** 1983, in *The Nearby Stars and the Stellar Luminosity Function* (IAU Colloquium No. 76), Ed. A. G. D. Phillips and A. R. Upgren (Van Vleck Observatory, Wesleyan University, Middletown, Connecticut), p. 107-112.
4. *The Performance of the Multiple Mirror Telescope. VIII. The MMT as an Optical-Infrared Interferometer and Phased Array*, **D. W. McCarthy**, P. A. Strittmatter, E. K. Hege, and F. J. Low 1982, Proc. S.P.I.E., 332, 57-64.  
Reprinted in *Selected Papers in Astronomical Optics* (Ed. D. J. Schoeder), SPIE Milestone Series, 1993, vol. MS 73, p. 414.

3. *The Performance of the Multiple Mirror Telescope. VII. Image Shrinking in Sub-Arcsecond Seeing at the MMT and 2.3 m Telescopes*, N. J. Woolf, **D. W. McCarthy**, and J. R. P. Angel 1982, Proc. S.P.I.E., 332, 50-56.
2. *Infrared Spatial Interferometry: Present Status and Future Plans*, **D. W. McCarthy**, F. J. Low, and R. Howell 1979, Proc. S.P.I.E., 172, 140-148.
1. *Infrared Measurements of Flattened Circumstellar Envelopes*, **D. W. McCarthy** 1979, in High Angular Resolution Stellar Interferometry (IAU Colloquium No. 50), Ed. J. Davis and W. J. Tango (Chatterton Astronomy Department, School of Physics, University of Sydney), p. 18:1-13.

### Education Articles (Journals and Magazines)

19. *Subject Matter Experts in Science Education – The Legacy of NIRCams and JWST*, **McCarthy, D.**, Lebofsky, L., and Nordt, A., 2022, AstroBeat (February), 9 pp.
18. *Alpha Chi Omega’s Surprising Connections to the Night Sky*, **McCarthy, D.** and D’Andrea, K., The Lyre, July 2017, 119, #4, pp. 36-39.  
plus subsequent *Letter to the Editor*
17. *The Quantitative Reasoning for College Science (QuARCS) Assessment II: Demographic, Academic and Attitudinal Variables as Predictors of Quantitative Ability*, Follette, K., Buxner, S., Dokter, E., **McCarthy, D.**, Vezino, B. Brock, L., and Prather, E., 2015, Numeracy, 10, issue #1, article 5, 33 pp.
16. *The Quantitative Reasoning for College Science (QuARCS) Assessment I: Development and Validation*, Follette, K., **McCarthy, D.**, Dokter, E., Buxner, S., and Prather, E., 2015, Numeracy, 8, issue #2, article 2, 38 pp.
15. *A Human-Powered Orrery: Connecting Learners with the Night Sky*, Lebofsky, L., Lebofsky, N., Higgins, M., **McCarthy, D.**, and the NIRCams, E/PO Team, 2013, The Universe in the Classroom (Astronomical Society of the Pacific), #82, Winter 2013, pp. 1-5
14. *Authentic Research in Science Education and Outreach*, **McCarthy, D.** & Lockwood, J., 2013, Astronomy Beat #113, July 17 issue, 6 pages.
13. *Pluto: Still Making Waves*, **McCarthy, D.** and Benecchi, S., 2013, Astronomy Beat, 108, February 12 issue, 5 pages.
12. *Lighting the Fire*, **McCarthy, D.**, 2012, Mercury, 41, #2, pp. 16-21.
11. *How We Serve (or Underserve) Our Student Through ‘Dumbing Down’: Improving Skills in Quantitative Literacy (QL) via Introductory Astronomy*, **McCarthy, D.** & Follette, K., Mercury, Autumn 2010, 40, #4, pp. 24-25.
10. *A Famous Telescope Turns 40*, **McCarthy, D.** & Levy, D. H., 2010, Astronomy, July 2010, 38, #7, pp. 52-53.
9. *Don’t Know Much About ... Astronomers*, Hooper, E. & **McCarthy, D.**, 2005, StarDate, 33, #4, p. 15.
8. *Making Your Own Astronomical Camera*, Kern, S. & **McCarthy, D.**, 2000, The Universe in the Classroom, The Astronomical Society of the Pacific, #50, second quarter, 1-4. reproduced on the web site of the Astronomical Society of the Pacific <http://www.apsky.org/education/tnl/50/camera1.html>
7. *High Observatory Adventures at Astronomy Camp*, **McCarthy, D.**, 2000, Sky & Telescope, 99, #4, 80-83.
6. *A Cosmological Principal?*, **McCarthy, D.W.** & Hinz, J., 1998, submitted to Astronomy magazine for their essay competition (unpublished)
5. *A Liquid Nitrogen Cannon*, Register, J. & **McCarthy, D.** 1997, submitted to The Physics Teacher, referees regarded it as too dangerous (unpublished)
4. *Astronomy Camp: Adventures in Scientific Research*, Hooper, E. & **McCarthy, D.**, 1993, (Nov./Dec.), Mercury, 22, 25-29.
3. “Astronomy Summer Camp,” Sky & Telescope, 1990, 79, 207.

2. *Van Biesbroeck 8B: Brown Dwarf and Extraordinary Planet*, McCarthy, D. W., 1985, "The Evidence for Sub-Stellar Companions," **McCarthy, D. W.**, 1984, *The Planetary Report*, 4, 10-11.

1. *Red and White, Brown and Black: Hide-and-Seek with the Four Dwarfs*, **McCarthy, D. W.** & Zeitner, M., 1985, *Griffith Observer*, 49, 2-11. (Honorable Mention award winner in 1984 Hughes Griffith Observer writing contest)

## **Education Articles (Miscellaneous)**

### **Editorials:**

15. *A Runway Almost Taken*, D. McCarthy and L. Lebofsky, *Arizona Daily Star*, Dec. 30, 2022, online and print, Letter to the Editor (SOFIA aircraft NASA research and education proposal)  
[https://tucson.com/opinion/letters/letters-to-the-editor-dec-30/article\\_974029a8-7fe7-11ed-91d5-4b972fcec942.html](https://tucson.com/opinion/letters/letters-to-the-editor-dec-30/article_974029a8-7fe7-11ed-91d5-4b972fcec942.html)

14. *Comments on Just Physics? -- "The Game of Grades and the Hidden Curriculum,"* **D. McCarthy**, *The Physics Teacher*, October 2022, 60, p. 532. <https://aapt.scitation.org/doi/10.1119/5.0099775>

13. *JWST Does Deliver on Planet A*, **D. McCarthy** and L. Lebofsky, *Arizona Daily Star*, January 12, 2022, online, Letter to the Editor

12. *JWST Also Delivers on Earth*, **D. McCarthy** and L. Lebofsky, *Arizona Daily Star*, January 7, 2022, online, Letter to the Editor  
[https://tucson.com/opinion/letters/local-issues/letter-jwst-also-delivers-on-earth/article\\_3e59b212-6f28-11ec-85be-e3ff1f910105.html](https://tucson.com/opinion/letters/local-issues/letter-jwst-also-delivers-on-earth/article_3e59b212-6f28-11ec-85be-e3ff1f910105.html)

11. *Space Telescope a Learning Tool*, **D. McCarthy** and L. Lebofsky, *Arizona Daily Star*, January 9, 2022, print, Letter to the Editor

10. *Ultramarathoner Continues to Inspire*, **D. McCarthy**, *Arizona Daily Star*, Feb 14, 2021, online and print, Letter to the Editor.

9. *Inspirational Space Program*, **McCarthy, D.**, *Arizona Daily Star*, Dec 16 (online) and 19 (print), 2018, Letter to the Editor.

8. *Lowdown on Earth's Heat*, **McCarthy, D.**, *Science News*, October 8, 2011, 180, #8, p. 31.

7. *Impossible View*, **McCarthy, D.**, *Science News*, March 28, 2009, p. 30. (Milky Way galaxy)

6. *Tucson Citizen*, **McCarthy, D.**, March 1, 2007, page 14A (math education)

5. *Attack Math Inadequacy ASAP*, **McCarthy, D.**, *Tucson Citizen*, Sept. 24, 2004.

4. *Wall Street Journal*, **McCarthy, D.**, Sept. 27, 2006, page A19 (math education)

3. *Balloon helicopter manufacturers*, **McCarthy, D.**, 2002, *The Physics Teacher*, on their Web site at [www.aapt.org.tpt/](http://www.aapt.org.tpt/)

2. *Figuring Radiative Efficiency*, **McCarthy, D.**, 2002, *The Physics Teacher*, 40, p. 325.

1. Letter to the Editor, 1995, **McCarthy, D.**, *Science News*, 147, 211.

### **Photography:**

*Introduction to Adaptive Optics*, R. K. Tyson, (ISBN 0-8194-3511-2), S.P.I.E. Press, vol. TT41, Figure 1.5, p. 10, two photos of sodium laser guide star and Rayleigh backscatter taken at the 4.5m MMT.

### **Popular Book:**

*Other Suns. Other Worlds?* D. Mammana and **D. McCarthy**, St. Martin's Press, 225 pages, published April, 1996. (ISBN 0-312-14021-5). Republished in Polish with updated epilogue, "Inne Slonca, Inne Swiaty?", Proszynski i S-ka, (Warszawa Dec. 1998), 253 pages. (ISBN 83-7180-300-1)

### **Related to Astronomy Camps:**

numerous articles listed at <http://www.astronomycamp.org/publications.html>



### **Articles with significant input but without authorship:**

8. *Astronomers Engaging with the Education Ecosystem: A Best-Evidence Synthesis*, Pompea, S. M. and Russo, P., 2020, Annual Reviews of Astronomy and Astrophysics, vol. 58, 313-361. See Section 5.6 about Astronomy Camp.

7. *The Science of Sunsets*, Cruz, V. M., Tucson Daily Star, July 4, 2021.

[https://thisistucson.com/instagram/5-reasons-why-tucson-has-the-most-spectacular-sunsets/article\\_79e5b8e2-d5d8-11eb-b2aa-0bc1cd72520a.html](https://thisistucson.com/instagram/5-reasons-why-tucson-has-the-most-spectacular-sunsets/article_79e5b8e2-d5d8-11eb-b2aa-0bc1cd72520a.html)

6. *Discovering the Universe at Astronomy Camp*, Buckley, E., 2014, Mercury, 43, #1, pp. 28-34.

5. *Sky Guy*, Sweet, W., Sept. 2012, Tucson Lifestyle magazine, 31, #9, pp. 15-16.

4. *Sharing the Thrill of Discovery*, Levy, D. H., 1994, Sky & Telescope, 88, 95-96.

3. *Reaching for the Stars*, Regester, J., 1992, Stardate, 20, 16-19.

2. *The Hunt for Brown Dwarfs*, Bartusiak, M., 1991, Discover, 12, 40-53.

1. *Basic Research - Profiles of Three Working Scientists*, Ohmans, P. 1983, TWA Ambassador Magazine, 16, 37-44 (cover article).

## **Presentations categorized by science & education**

### **Scientific Presentations (Society Meetings and Specialized Workshops)**

135. American Astronomical Society meeting #241, January 2023:

*Hot Spots and Chemistry: The Power of Bayesian Frameworks and 3D Modeling in the Analysis of High Resolution Spectroscopy of Exoplanet Atmospheres*, van Sluij, L., Birkby, J., Lotheinger, J., Lee, El. Crossfield, I., Parmentier, V., Brogi, M., Kulesa, C., **McCarthy, D.**, Powell, K., and Charbonneau, D., Bull. A.A.S., 55, e-id 2023n2i350p06.

134. *Carbon Monoxide Emission Lines Indicate an Offset Hotspot in the Inverted Atmosphere of the Ultra Hot Jupiter WASP-33 b: A Thermal Inversion and Evidence of an Eastward Hotspot*, van Sluij, L., Birkby, J., Lotheinger, J., Lee, El. Crossfield, I., Parmentier, V., Brogi, M., Kulesa, C., **McCarthy, D.**, Powell, K., and Charbonneau, D., European Astronomical Society meeting (Valencia, Spain), June 27, 2022.

133. *Carbon Monoxide Emission Lines Indicate an Offset Hotspot in the Inverted Atmosphere of the Ultra Hot Jupiter WASP-33 b: A Thermal Inversion and Evidence of an Eastward Hotspot*, van Sluij, L., Birkby, J., Lotheinger, J., Lee, El. Crossfield, I., Parmentier, V., Brogi, M., Kulesa, C., **McCarthy, D.**, Powell, K., and Charbonneau, D., Exoplanets IV conference (Davos Switzerland), May 1, 2022, Bull A.A.S., 54, #5, id. 503.01.

132. *Comparative Exoplanetology at High Spectral Resolution from the MEASURE Program Preliminary result " CO in Emission from the Dayside of WASP-33b,"* van Sluijs, L., Birkby, J., Lothringer, J., Crossfield, I., Charbonneau, D., Kulesa, C., **McCarthy, D.**, Powell, K., Towards the Comprehensive Characterization of Exoplanets: Science at the Interface of Multiple Measurement Techniques, STScI (April, 2021)

131. *An Extremely Wide Companion Candidate to a Nearby M-dwarf System*, Guzzetti, M., Ward-Duong, W., De Rosa, R., Patience, J., Follette, K., Edwards, S., **McCarthy, D.**, and Kulesa, C., American Physical Society, Meeting April 2020, 65, #2.

130. American Astronomical Society meeting #235, January 2020:

*Updated Stellar Properties and Companion Candidates from the M-dwarfs in Multiples Survey (MinMs)*, Jain, A., Ward-Duong, K., Gameros, S., De Rosa, R., Patience, J., Follette, K., **McCarthy, D.**, Kulesa, C., Parker, R., Goodwin, S., Ahwah, J. and Mohamed, K.#235

129. American Astronomical Society meeting #233, January 2019:

*Investigating Brown Dwarf Candidates from the M-dwarfs in Multiples (MinMs) Survey*, Gameros, S., Ward-Duong, K., De Rosa, R., Patience, J., Follette, K., **McCarthy, D.**, Kulesa, C., Parker, R., and Goodwin, S., #259.39.

128. American Astronomical Society meeting #229, January 2017:

*Companions and Environments of Low-Mass Stars: From Star-Forming Regions to the Field*, Ward-Duong, K., Patience, J., DeRosa, R., Bulger, J., Rajan, A., Goodwin, S., Parker, R., **McCarthy, D.**, Kulesa, C., van der Plas, G., Menard, F., Pinte, C., Jackson, A., Bryden, G., Turner, N., Harvey, P., and Hales, A., #230.03.

125-127. American Astronomical Society, 227<sup>th</sup> meeting, January 2016:

*Adaptive Optics Imaging of Exoplanet Host Stars*, Herman, M., Waaler, M., Patience, J., Ward-Duong, K., Rajan, A., **McCarthy, D.**, Kulesa, C., Wilson, P., #138.06.

*The Census of Objects within 10 Parsecs*, Henry, T., Jao, W., Winters, J., Dietrich, S., Finch, C., Hambly, N., Ianna, P., **McCarthy, D.**, Reidel, A., Subasavage, J., #142.01.

124. *The M-dwarfs in Multiples (MinMs) Survey - Stellar Multiplicity within 15 pc*, Ward-Duong, K., Patience, J., Rosa, R., Bulger, J., Rajan, A., **McCarthy, D.**, Kulesa, C., Goodwin, S., and Parker, R., 2014, 18th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun, Proceedings of the conference held at Lowell Observatory, 8-14 June, 2014. Edited by G. van Belle and H.C. Harris., pp. 953-958.

122-123. American Astronomical Society, 218<sup>th</sup> meeting, May 2011:

*Following up Kepler Objects of Interest Using Adaptive Optics Images*, Adams, E., Dupree, A.K., Kulesa, C., **McCarthy, D.W.**, and Kepler Science Team, Bull AAS, 43, #227.03.

*High Resolution Imaging of Kepler Objects of Interest (KOI)*, Dupree, A.K., Adams, E., Ciardi, D.R., Gautier, T.N., Howell, S., Kulesa, C., **McCarthy, D.**, and Kepler Science Team, 43, Bull AAS, #112.05.

121. *Slitless Spectroscopy of GJ 1214b in K-Band*, Teske, J., Griffith, C., Swaim, M., Deroo, P., **McCarthy, D.**, and Kulesa, C., American Astronomical Society, ESS meeting #2, 2011, #29.01.

120. *Observing Planets with JWST/NIRCAM*, Beichman, C., Doyon, R., Greene, T., Horner, S., Krist, J., **McCarthy, D.**, Meyer, M., Rieke, M., Serabyn, E., Stansberry, J., and Stauffer, J., 2010, Proceedings of the conference In the Spirit of Lyot 2010: Direct Detection of Exoplanets and Circumstellar Disks, October 25-29, University of Paris Diderot, Paris, France, Edited by Anthony Boccaletti.

118-119. American Astronomical Society, 213<sup>th</sup> meeting, Jan 2009:

*A Comparison of UV and H $\alpha$  Star Formation Rates in Intermediate Redshift Galaxies*, Walton, J., Salim, S., Lee, J., Ly, C., Finn, R., Moore, C., Dale, D., **McCarthy, D.**, Kulesa, C., and Kenefick, J., Bull AAS, 41, 246.

*Probing the IMF Beyond the Milky Way: Integrated Spectra of Young Super-Star Clusters in Nearby Galaxies*, J. Greissl, M. Meyer, M. Christopher, N. Scoville, R. Blum, C. Kulesa, **D. McCarthy**, Bull AAS, 41, 486.

117. *Near-IR Solar System Capabilities of the NIRC*am* Instrument on JWST*, a conference in September in Italy (<http://www.arcetri.astro.it/~elba2008/>).

115-116. American Astronomical Society, DPS Meeting #39:

*Grazing Occultation reveals Gravity Wave Breaking in Pluto's High Atmosphere*, Kern, Susan D.; **McCarthy, D. W.**; Kulesa, C. A.; Hubbard, W. B.; Person, M. J.; Elliot, J. L.; Gulbis, A. A. American Astronomical Society, #52.13

*High Altitude Structure in Pluto's Atmosphere from the 2007 March 18 Stellar Occultation*, Person, Michael J.; Elliot, J. L.; Gulbis, A. A.; Zuluaga, C. A.; Babcock, B. A.; Pasachoff, J. M.; McKay, A. J.; Souza, S. P.; Hubbard, W. B.; Kulesa, C. A.; **McCarthy, D. W.**; Kern, S. D.; Levine, S. E.; Bosh, A. S.; Ryan, E. V.; Ryan, W. H.; Meyer, A.; Wolf, J.; Hill, J. M. American Astronomical Society, #52.14

114. *IAU Circular (134340) Pluto*: Person, M. J.; Elliot, J. L.; Gulbis, A. A. S.; Hubbard, W. B.; Kulesa, C. A.; **McCarthy, D. W.**, Kern, S. D., 2007, IAU Circ., 8825, 2. Edited by Green, D. W. E.

112-113. American Astronomical Society Meeting #209:

*Progress on NIRC*am*, the Near-Infrared Camera for JWST*, Rieke, M., Horner, S., Kelly, D., Stansberry, J., Young, E., Eisenstein, **D. McCarthy**, D., Meyer, M., Rieke, G., Baum, S., Beichman, C., Doyon, R., Dressler, A., Ferrarese, L., Greene, T., Hall, D., Hodapp, K., Johnstone, D., Lilly, S., Martin, P., Roellig, T., Stauffer, J., and Trauger, J., 2006, *Bull A.A.S.*, 38, #4, p. 1188.

*A Survey of Close, Young Stars with SDI at the VLT and MMT*, Biller, B., Close, L., Masciadri, E., Lenzen, R., Brandner, W., **McCarthy**, D., Henning, T., Nielsen, E., and Hartung, M., 2006, *Bull A.A.S.*, 38, #4, p. 1157.

110-111. IAU Colloquium #200 (Direct Imaging of Exoplanets):

*A Survey of Close, Young Stars with SDI at the VLT and MMT*, B. Biller, L. Close, E. Masciadri, R. Lenzen, W. Brandner, **D. McCarthy**, T. Henning, E. Nielsen, and M. Hartung, 2005, IAU Colloquium #200 (Direct Imaging of Exoplanets: Science and Techniques; eds.: C. Aime and F. Vakili), pp. 53-60.

*Suppressing Speckle Noise for Simultaneous Differential Extrasolar Planet Imaging (SDI) at the VLT and MMT*, B. Biller, R. Lenzen, W. Brandner, **D. McCarthy**, E. Nielsen, S. Kellner, and M. Hartung, 2005, IAU Colloquium #200 (Direct Imaging of Exoplanets: Science and Techniques; eds.: C. Aime and F. Vakili), pp. 571-576.

108-109. IAU Colloquium in Nice, Fall 2005:

*A Survey of the Closest, Youngest Stars with the Simultaneous Differential Extrasolar Planet Imager (SDI) at the VLT and MMT*, B. Biller, R. Lenzen, W. Brandner, **D. McCarthy**, E. Masciadri, T. Henning, E. Nielsen, and M. Hartung

*Suppressing Speckle Noise for Simultaneous Differential Extrasolar Planet Imaging (SDI) at the VLT and MMT*, B. Biller, R. Lenzen, W. Brandner, **D. McCarthy**, E. Nielsen, S. Kellner, and M. Hartung

106-107. American Astronomical Society, 205th annual meeting, 2004, *Bull. A.A.S.*, 36, #5:

*Discovery of a Scattering Nebula Associated with L1014-IRS*, Huard, T., Myers, P., Crapsi, A., Murphy, D., Crews, L., Evans, N., Kulesa, C., and **McCarthy**, D., p. 1545.

*The Near-Infrared Synchrotron Spectral Index of Cassiopeia A*, Eriksen, K., **McCarthy**, D., and Liu, W., p. 1462.

105. *Visible and IR Observations of the Outer Solar System Object 29981 (1999 TD<sub>10</sub>)*, B. Mueller, C. Hergenrother, N. Samarashinha, H. Campins, and **D. McCarthy**, 2003, American Astronomical Society, DPS meeting #35, #39.13

104. *Ha Star-Formation Rates for the z=0.84 Galaxy Cluster CLJ0023+0423B*, R. Finn, D. Zaritsky, and **D. McCarthy**, 2003, Astronomical Society, 203rd annual meeting, *Bull. A.A.S.*, 33, #89.05.

103. *Near-Infrared Flux Limits for Sgr A\* Based on NICMOS Data*, S. Stolovy, F. Melia, **D. McCarthy**, F. Yusef-Zadeh, 2003, *Astronomische Nachrichten*, Supplementary Issue #1, Proceedings of the Galactic Center Workshop 2002 - The Central 300 Parsecs of the Milky Way, 419-423.

102. *Simultaneous Visible and Near-Infrared Imaging of Comet 19P/Borrelly Around the Deep Space 1 Encounter Time*, N. Samarashinha, H. Campins, **D. McCarthy**, and B. Mueller, 2002, In Abstract book for IAU Colloquium 186 "Cometary Science After Hale-Bopp" (Tenerife, Spain).

100-101. American Astronomical Society, 199th annual meeting, 2001, *Bull. A.A.S.*, 33, #4:

*Mineralogical Mapping of Asteroid 4 Vesta*, A. Rosenberg, A. Storrs, J. Conan, **D. McCarthy**, R. Binzel, J. Drummond, M. Gaffey, K. Hege, L. Lebofsky, P. Thomas, E. Wells, and B. Zellner, 1402.

*A Study of Faint Companions of Nearby Stars in the Near-IR with the Mt. Wilson 100 inch Telescope and Adaptive Optics System*, A. Chakraborty, J. Ge, J. Debes, R. Brown, **D. McCarthy**, C. and Ftaclas, 1398.

99. *A Near-Infrared Wide-Field Proper Motion Search for Brown Dwarfs*, J. L. Hinz, **D. W. McCarthy**, D. A. Simons, T. J. Henry, J. D. Kirkpatrick, and P. C. McGuire, American Astronomical Society, 198th annual meeting, 2001, *Bull. A.A.S.*, 33, #2, 890.

98. *Detecting Exo-Solar Planetary Systems with the LBT*, P. Hinz, J. Angel, **D. McCarthy**, W. Hoffmann, and N. Woolf, Science with the Large Binocular Telescope, Proceedings of a workshop held at Ringberg Castle, Bavaria, on July 24-29, 2000. (Neumann Druck: 2001). Editor: T. Herbst. ISBN 3-00-008071, p. 203.

95-97. American Astronomical Society, 32nd annual DPS meeting, 2000, Bull. A.A.S., 32, #3:

*Mineralogical Mapping of Asteroid 4 Vesta with HST/NICMOS: First Results*, J. Carvano, **D. McCarthy**, R. Binzel, J. Drummond, M. Gaffey, E. K. Hege, L. Lebofsky, P. Thomas, B. Zellner, A. Storrs, and J. Hinz, 1003.

*The Inhomogeneous Surface of Centaur 8405 Asbolus*, S. Kern, **D. McCarthy**, M. Buie, R. Brown, H. Campins, and M. Rieke, 1028.

*Comet Hale-Bopp in Outburst: Imaging the Coma and the Nucleus with HST's NICMOS*, H. Campins, **D. McCarthy**, S. Stolovy, S. Kern, S. Larson, S. Samarasinha, and A. Ferro, 1064.

94. *Parallax and Component Masses of Wolf 1062 (Gl 748) from HST Fine Guidance Sensor Interferometry*, G. Benedict, B. McArthur, O. Franz, L. Wasserman, T. Henry, I. Strateva, P. Ianna, and **D. McCarthy**, American Astronomical Society, 31st annual DDA meeting, 1999, Bull. A.A.S., 31, #4, 1229.

91-93. American Astronomical Society, 31st annual DPS meeting, 1999, Bull. A.A.S., 31, #4:

*The 1-2.5 Micron Spectrum of 3200 Phaeton Observed with HST's NICMOS*, H. Campins, **D. McCarthy**, S. Kern, H. Weaver, and R. Brown, 1121.

*Imaging the Dynamics of Icy Particles in the Near-Nuclear Region of Comet Hale-Bopp*, **D. McCarthy**, S. Stolovy, S. Kern, H. Campins, S. Larson, and A. Ferro, 1099.

*1-2.5 Micron Spectra of Centaurs and Trans-Neptunian Objects*, S. Kern, **D. McCarthy**, H. Campins, R. Brown, M. Rieke, and S. Stolovy, 1094.

89-90. American Astronomical Society, 194th annual meeting, 1999, Bull. A.A.S., 31, #3:

*The University of Arizona/Lockheed Martin Conceptual Study of the NGST Science Instrument Module*, J. Bechtold, K. Ennico, T. Greene, J. Burge, M. Rieke, G. Rieke, H. Rix, E. Young, M. Lesser, R. Sarlot, R. Angel, **D. McCarthy**, R. Thompson, P. Forney, L. Lesyna, K. Triebes, and J. Gunn, 986.

*Next Generation Ground-based Very High Resolution Optical and Infrared Spectrographs for Extra-solar Planet Searches*, J. Ge, D. Ciarlo, P. Kuzmenko, C. Alcock, B. Macintosh, C. Max, W. van Breugel, K. Cook, D. Gavel, S. Olivier, H. Friedman, R. Angel, N. Woolf, M. Lloyd-Hart, **D. McCarthy**, R. Fugate, J. Najita, and J. Graham, 837.

88. *Comet C/1999 F1 (Catalina)*, T. Spahr, B. Marsden, J. Bialozynski, D. Dietrich, C. Greenberg, E. Hooper, D. McBee, **D. McCarthy**, J. Pici, G. Rudnick, C. Vedeler, and C. Hergenrother, IAU Circular, 7148, 1.

87. *Imaging Extra-solar Systems from the Ground: The MMT and LBT Nulling Interferometers*, P. Hinz, R. Angel, N. Woolf, W. Hoffmann, and **D. McCarthy**, 1999, ASP Conference Series, *Working on the Fringe* (Dana Point, CA, May 24-27, 1999), 194, (eds. S. Unwin and R. Stachnik), 401-407.

80-86. American Astronomical Society, 193rd annual meeting, 1998, Bull. A.A.S., 30, #4:

*Wide-Field, R and H Band Imaging of Quasar Environments*, R. Finn, **D. McCarthy**, C. Impey, and E. Hooper, 1411.

*NICMOS Observations of the Central Parsec: Deep Imaging, Variability, and Ionized Emission*, S. Stolovy, **D. McCarthy**, M. Rieke, F. Melia, G. Rieke, and F. Yusef-Zadeh, 1406.

*A Wide-Field Camera for 1-2.5 Micron Imaging at the 2.3 and 6.5m Telescopes*, **D. McCarthy**, J. Ge, J. Hinz, R. Finn, F. Low, M. Cheselka, and K. Salvestrini, 1265.

*The University of Arizona/Lockheed Martin Conceptual Study of the NGST Science Instrument Module*, J. Bechtold, K. Ennico, T. Greene, J. Burge, M. Rieke, G. Rieke, H. Rix, E. Young, M. Lesser, R. Sarlot, R. Angel, **D. McCarthy**, R. Thompson, P. Forney, L. Lesyna, K. Triebes, and J. Gunn, 1296.

- A NICMOS Search for Very-Low Mass Companions within 10 pc*, D. Golimowski, T. Henry, J. Krist, C. Burrows, H. Ford, **D. McCarthy**, and D. Schroder, 1394.
- Refining Nulling Interferometry with the Old and New Multiple Mirror Telescope*, P. Hinz, R. Angel, W. Hoffmann, **D. McCarthy**, N. Woolf, and P. McGuire, 1393.
- A Coronagraphic Search for Substellar Companions to Young Stars with NICMOS on HST*, E. Becklin, B. Smith, G. Schneider, P. Lowrance, D. Hines, F. Low, **D. McCarthy**, M. Rieke, R. Thompson, R. Terile, D. Kirkpatrick, D. Koerner, R. Meier, and B. Zuckerman, 1290.
79. *NICMOS Observations of the Central Parsec: Deep Imaging at 1.6 Microns, Short-Term Variability, and Ionized Emission*, S. Stolovy, **D. McCarthy**, F. Melia, G. Rieke, M. Rieke, and F. Yusef-Zadeh 1998, ASP Conference Series, The Central Parsecs of the Galaxy (Tucson, AZ, Sept. 7-11, 1998), 186, (ed. H. Falcke, A. Cotera, W. Duschl, F. Melia, and M. Rieke), 39-48.
- 76-78. Division of Planetary Sciences, American Astronomical Society, 30th annual meeting, 1998, Bull. A.A.S., 30, #3:
- Mineralogic Mapping of Asteroid 4 Vesta from 1-2 Microns with NICMOS/HST*, L. Lebofsky, **D. McCarthy**, E. Hege, R. Binzel, J. Drummond, M. Gaffey, P. Thomas, E. Wells, and B. Zellner, p. 1025.
- NICMOS/HST Post-Perihelion Images of Comet Hale-Bopp on Outburst*, S. Kern, **D. McCarthy**, S. Stolovy, G. Schneider, T. Ferro, H. and Spinrad, p. 1064.
- 1-2 Micron Grism Spectroscopy of Centaurs and Kuiper Belt Objects from NICMOS*, **D. McCarthy**, H. Campins, S. Kern, R. Brown, S. Stolovy, and M. Rieke, p. 1114.
75. *A Coronagraphic Search for Substellar Companions to Young Stars*, P. Lowrance, E. Becklin, G. Schneider, D. Hines, J.D. Kirkpatrick, D. Koerner, F. Low, **D. McCarthy**, R. Meier, M. Rieke, B. Smith, R. Terile, R. Thompson, and B. Zuckerman, 1998, *NICMOS and the VLT: A New Era of High Resolution Near Infrared Imaging and Spectroscopy*, (Pula, Sardinia, May 26-27) ed. W. Freudling and R. Hook, p. 96-101.
74. *NICMOS Post-Perihelion Images of Comet Hale-Bopp in Outburst*, **D. McCarthy**, S. Stolovy, S. Kern, G. Schneider, T. Ferro, H. Spinrad, J. Black, B. Smith, First International Conference on Comet Hale-Bopp, February 1998, Tenerife, Spain
- 70-73. American Astronomical Society, 191st meeting, 1998, Bull. A.A.S., 29, #5:
- A NICMOS Search for Very-Low Mass Companions to Stars Within 10 pc of the Sun*, D. Golimowski, H. Ford, T. Henry, J. Krist, C. Burrows, **D. McCarthy**, D. Schroeder, p. 1278.
- Diffraction-Limited Imaging of Comet Hale-Bopp at 1.9-2.2 Microns with NICMOS/HST*, **D. McCarthy**, S. Stolovy, S. Kern, G. Schneider, T. Ferro, H. Spinrad, J. Black, B. Smith, p.1320.
- NICMOS 2-Micron Observations of Comet Hale-Bopp*, S. Stolovy, **D. McCarthy**, S. Kern, G. Schneider, T. Ferro, H. Spinrad, J. Black, and B. Smith, invited talk at special session on Hale-Bopp, listed in late-paper titles, p. 9.
- The Mass-Luminosity Relation at the End of the Main Sequence*, T. Henry, O. Franz, L. Wasserman, G. Benedict, P. Shelus, P. Ianna, J. Kirkpatrick, and **D. McCarthy**, p. 1278.
69. *The "Double Nucleus" of M31 in J, H, and K*, P. Hinz, M. Lloyd-Hart, K. Hege, **D. McCarthy**, and F. Melia, IAU General Assembly #23, (Kyoto, Japan), 1997, p. 208.
68. *Parallel Observations with STIS and NICMOS*, J. P. Gardner, S. R. Heap, E. M. Malumuth, B. E. Woodgate, R. J. Weymann, **D. W. McCarthy**, and R. I. Thompson, conference on "HST and the High Redshift Universe", (1-5 July 1996)
67. *The Spatial and Color Distribution of Supergiants in M33*, D. Wittman, M. Rieke, and **D. McCarthy**, 1996, Bull. AAS, 188th Meeting of the AAS, 28, 837.
66. *Multiplicity of TTS In Southern Star Forming Regions*, A. Ghez, **D. McCarthy**, J. Patience, and T. Beck, "Planetary Formation in the Binary Star Environment", unknown reference

65. *Adaptive Optics Results from Tucson, Workshop on Optical/Infrared Interferometry and Adaptive Optics*, **D.W. McCarthy**, in honor of Charles H. Townes for his 80th birthday (Jan. 25-27, '96)
- 61-64. American Astronomical Society, 185th meeting, 1994, Bull. A.A.S., 26, #4:
- FASTTRAC I: A High Resolution Infrared Tip-Tilt Imager*, L. M. Close, D. Wittman, and **D. W. McCarthy**, 1373.
- A Search for Planets of Nearby Stars by Direct Imaging from the Ground*, J. R. P. Angel, N. Woolf, **D. McCarthy**, M. Lloyd-Hart, D. Sandler, R. Q. Fugate, and J. I. Lunine, 1373.
- The HST Medium Deep Survey: Steward BVRIJK and FASTTRAC JHK Imaging and Photometry of Faint Field Galaxies from Parallel WF/PC Images*, S. B. Mutz, R. A. Windhorst, E. J. Ostrander, D. Wittman, L. Close, **D. McCarthy**, R. E. Griffiths, and L. W. Neuschaefer, 1404.
- Adaptive Optics with Sodium Laser Guide Stars*, M. Lloyd-Hart, J. R. P. Angel, B. Jacobsen, D. Wittman, **D. McCarthy**, and T. Martinez, 1373.
60. *Saturn's Mesospheric Temperature from 28 Sgr Occultations*, W. B. Hubbard and **19 co-authors**, 1994, Bull. A.A.S., 26th Annual Meeting of the DPS, 26, #3, 1109.
59. *High Angular Resolution Observations of the R Aqr Symbiotic System*, M. Karovska, **D. W. McCarthy**, and J. C. Christou, 1994, Cool Stars, Stellar Systems, and the Sun, ASP Conference Series, 64, 652-654.
58. *Adaptive Optics Results From the 6.9m MMT Array Telescope, with Natural Stars and a Sodium Beacon*, R. Angel, M. Lloyd-Hart, D. Wittman, **D. McCarthy**, B. Jacobsen, E. Kibblewhite, B. Carter, and W. Wild, 1993, Proceedings of the Institut D'Etudes Scientifiques de Cargese, Optique Adaptive Astrophysique - Aute Technologies
- 53-57. American Astronomical Society, 181st meeting, 1993, Bull. A.A.S., 24:
- A Wide Field Near Infrared Search for Low Mass Companions to Nearby Stars*, D. A. Simons, T. J. Henry, and **D. W. McCarthy**, 1169.
- What Color is Black? Multi-Band Photometry at the Location of the Black Hole Candidate Sgr A\**, L. M. Close, **D. W. McCarthy**, J. C. Christou, and F. Melia, 1178.
- Infrared Imaging Using a Prototype Adaptive Secondary Mirror for Rapid Tip-Tilt Correction*, **D. W. McCarthy** and L. M. Close, 1240.
- High Resolution Imaging with Adaptive Optics at the Multiple Mirror Telescope*, M. Lloyd-Hart, B. A. McLeod, D. Wittman, D. Colucci, **D. W. McCarthy**, R. Angel, and R. Dekany, 1240
- The Performance of Partial Adaptive Correction at the MMT*, J. C. Christou and **D. W. McCarthy**, 1241.
- 49-52. Adaptive Optics for Large Telescopes Technical Digest, (Optical Society of America, Washington, D.C., 1992), 19:
- Infrared Imaging Using a Tip/Tilt Secondary Mirror*, **D. McCarthy**, L. Close, B. McLeod, and M. Rieke, p. 118-119.
- Edge-Matched Segmented Secondary Mirrors for IR Adaptive Optics*, A. Gleckler, R. Angel, and **D. McCarthy**, p. 163-165.
- An Experiment to Investigate the Isoplanatic Angle of the Atmosphere in the Near-Infrared*, D. Neal, R. Michie, J. Drummond, **D. McCarthy**, and T. McKechnie, p.45-47.
- Results of Adaptive Correction of Atmospheric Piston and Tilt Errors at the Multiple Mirror Telescope*, M. Lloyd-Hart, R. Dekany, D. Wittman, D. Sandler, B. McLeod, R. Angel, and **D. McCarthy**, p. 116-117.
- 47-48. Proceedings of the ESO Conference No. 42 on Progress in Telescope and Instrumentation Technologies (Garching), April 1992:

*Sub-tenth Arcsecond Imaging with the Multiple Mirror Telescope*, M. Lloyd-Hart, D. Wittman, D. Colucci, B. McLeod, R. Dekany, R. Angel, **D. McCarthy**, and P. Wizinowich, 493-496.

*Optical Sensing of Infrared Wavefronts for Adaptive Control: A New CCD Detector and MMT Experiments*, D. Wittman, R. Angel, M. Lloyd-Hart, D. Colucci, and **D. McCarthy**, 453-460.

46. *Adaptive Optics at the Multiple Mirror Telescope*, M. Lloyd-Hart, P. Wizinowich, R. Angel, **D. McCarthy**, D. Colucci, R. Dekany, D. Wittman, March 1992, Proceedings of the Workshop on Laser Guide Stars in Adaptive Optics, Phillips Lab, (Albuquerque, NM), 2, 500-510.

41-45. ESO Conference on High Resolution Imaging by Interferometry (October 1991; Munich):

*A Novel Adaptive Optics Instrument for the Multiple Mirror Telescope*, P. Wizinowich, M. Lloyd-Hart, B. McLeod, D. Colucci, R. Dekany, D. Wittman, R. Angel, **D. McCarthy**, M. Rieke, N. McCaughrean, B. Hulburd, D. Sandler, (unpublished but presented at the conference)

*High Resolution Infrared Imaging of the Surfaces of Io, Ceres, and Vesta*, **D. McCarthy**, B. McLeod, J. Freeman, J. Christou, p. 161-166.

*Application of Robust Techniques to Model Fitting of Infrared Speckle Results of Binary and Extended Sources*, J. Freeman, T. Henry, and **D. McCarthy**, p. 491-520.

*Speckle Imaging: Results from a Systematic Search for Low-Mass Companions Orbiting Nearby Stars*, T. Henry, **D. McCarthy**, J. Freeman, J. Christou, D. Johnson, D. Kirkpatrick, p. 33-41.

*Stabilization of IR Images from Very Large Telescope: Tip/Tilt Correction via Peak or Centroid Tracking*, J. Christou, **D. McCarthy**, B. McLeod, p. 501-510.

40. *An Adaptive Optics System for the Multiple Mirror Telescope*, P. Wizinowich, J. R. P. Angel, B. A. McLeod, M. Lloyd-Hart, **D. W. McCarthy**, and I. C. Scott-Fleming, 1991, International Commission for Optics Topical Meeting on "Atmospheric, Volume and Surface Scattering and Propagation", DIGEST (Florence, Italy), p. 69-72.

39. *Global High Resolution Imaging of Hotspots on Io*, B. A. McLeod, **D. W. McCarthy**, and J. D. Freeman, 1991, AGU-MSA 1991 Spring Meeting, Eos, Transactions, American Geophysical Union, 72, #17, 184.

38. *Constraining the Faint End of the Stellar Luminosity Function Through a Systematic Search for M Dwarfs*, J. D. Kirkpatrick, T. J. Henry, **D. W. McCarthy** and J. T. McGraw, 1991, Bull. A.A.S., 22, 1204.

37. *Very High Resolution Imaging with the 6.86 m Cophased MMT*, **D. W. McCarthy**, B. A. McLeod, and D. Barlow, 1991, Astrophysics with Infrared Arrays (ed. Richard Elston), ASP Conference, 14, 139-141.

36. *High Spatial Resolution Imaging of Circumstellar Envelopes in the Near Infrared*, J. C. Christou, S. T. Ridgway, D. F. Buscher, C. A. Haniff, and **D. W. McCarthy**, 1991, Astrophysics with Infrared Arrays (ed. Richard Elston), ASP Conference, 14, 133-138.

35. *The End of the Main Sequence: M Dwarfs and Brown Dwarfs*, T. J. Henry and **D. W. McCarthy**, 1990, Bull. A.A.S., 21, 1193.

34. *A Template of Late K and M Stars Useful for Spectroscopic Classification in the Red/Near Infrared*, J. D. Kirkpatrick, T. J. Henry, and **D. W. McCarthy**, 1990, Bull. A.A.S., 21, 1113.

33. *An Infrared Speckle Camera for Two-dimensional Imaging at the Diffraction Limits of Large Telescopes*, **D. W. McCarthy**, B. A. McLeod, D. Barlow, and J. C. Christou, 1990, Bull. A.A.S., 21, 1070.

32. *Future Directions for NICMOS Arrays*, R. Thompson, M. Rieke, F. Low, E. Young, **D. McCarthy**, R. Rasche, M. Blessinger, K. Vural, and W. Kleinmans, 1989, Proc. of the Third Ames Infrared Detector Workshop, NASA Technical Memorandum TM-102209.

31. *Preliminary Results from the Saturn Occultation of 28 Sgr by the Saturn System: Rings*, C. Porco and **20 co-authors**, 1989, Bull. D.P.S., 21, 928.

30. *Preliminary Results from the Saturn Occultation of 28 Sgr by the Saturn System: Saturn*, W. Hubbard and **21 co-authors**, 1989, Bull. D.P.S., 21, 951.
29. *Very High Spatial Resolution, Infrared Imaging of Circumstellar Dust Envelopes with the Co-phased MMT*, **D. W. McCarthy**, J. F. Lockwood, and J. C. Christou 1989, Bull. A.A.S., 20, 1053.
28. *A Systematic Search for Brown Dwarfs Orbiting Nearby Stars*, T. J. Henry and **D. W. McCarthy** 1989, Bull. A.A.S., 20, 998.
27. *Diffraction-limited Astronomical Infrared Imaging through the Turbulent Atmosphere*, ECOOSA '88: "Imaging, Propagation and Scattering Through Random Media," J. C. Christou, **D. W. McCarthy**, J. D. Freeman, and F. Roddier 1988, J. Phys. D: Appl. Phys., 21, S49-52.
26. *Interferometry with the Columbus Telescope: Design Considerations Based on MMT Experience and Image Simulations*, **D. W. McCarthy**, E. K. Hege, J. D. Freeman, D. R. Blanco, J. C. Sjogren, C. C. Janes, J. W. Montgomery, and S. B. Shaklan, ESO conference on "Very Large Telescopes and Their Instrumentation" (March 1988, No. 30), 2, 787-803.
- 22-25. NOAO-ESO Conference on "High-Resolution Imaging by Interferometry" (March 1988, No. 29):
- Improved Performance of the 6.86m MMT for Visible/Infrared Imaging at the Diffraction Limit*, **D. W. McCarthy** and E. K. Hege, 1, 887-897.
- Near-Infrared Imaging of Low Mass Objects as Close Companions to Nearby Stars*, **D. W. McCarthy**, J. C. Christou, and T. J. Henry, 1, 541-552.
- Application of Speckle Masking to Infrared Speckle Data*, J. C. Christou, J. D. Freeman, F. Roddier, and **D. W. McCarthy**, 1, 201-216.
- A Comparison of Phase Retrieval Methods Applied to One-Dimensional Infrared Astronomical Speckle Data*, J. D. Freeman, **D. W. McCarthy**, and J. C. Christou, 1, 341-347.
21. *The Second Nearest Triple System: G208-44A/B and G208-45*, T. J. Henry, **D. W. McCarthy**, T. A. Fleming, R. A. Saffer, and J. W. Liebert 1988, Bull. A.A.S., 19, 1087.
20. *Application of Bispectrum Analysis to One-Dimensional Infrared Speckle Data*, J. C. Christou, J. D. Freeman, F. Roddier, **D. W. McCarthy**, and M. L. Cobb, 1987, Bull. A.A.S., 19, 749.
- 18-19. Infrared Astronomy with Arrays, Proceedings of the "Workshop on Ground-based Astronomical Observations with Infrared Array Detectors", (ed. C. G. Wynn-Williams and E. E. Becklin: University of Hawaii, Institute of Astronomy, Honolulu, Hawaii) , March 1987
- High Angular Resolution Infrared Imaging at NOAO*, J. C. Christou, F. Roddier, J. Beckers, J. D. Freeman, **D. W. McCarthy**, M. L. Cobb, S. Ridgway, and R. Probst, p. 464-467
- Two Dimensional High Angular Resolution Infrared Imaging of Circumstellar Shells*, M. L. Cobb, **D. W. McCarthy**, and J. F. Arens, poster paper
- 13-17. Interferometric Imaging in Astronomy, Proceedings of the ESO-NOAO Workshop on High-Resolution Imaging from the Ground Using Interferometric Imaging Techniques, 1987, ed. J. Goad
- Image Selection and Binning for Improved Atmospheric Calibration of Infrared Speckle Data*, J. C. Christou, **D. W. McCarthy**, and M. L. Cobb, p.17-20.
- Application of Triple Correlation to One-Dimensional Infrared Speckle Data*, J. D. Freeman, J. C. Christou, F. Roddier, **D. W. McCarthy**, and M. L. Cobb, p.47-50.
- Phased Array Imaging with the Multiple Mirror Telescope*, E. K. Hege, **D. W. McCarthy**, J. C. Hebden, and J. C. Christou, p. 105-108.



*Fourier Inversion and Deconvolution Methods*, M. L. Cobb and **D. W. McCarthy**, p. 197-200.

*Imaging of Low Mass Binary Companions and Circumstellar Disks*, **D. W. McCarthy**, p. 237-244.

12. *Two Dimensional High Angular Resolution Infrared Imaging of Circumstellar Shells*, M. L. Cobb, **D. W. McCarthy**, and J. F. Arens 1987, *Bull. A.A.S.*, 19, 646.

11. *Phased Array Imaging with the Multiple Mirror Telescope*, E. K. Hege, **D. W. McCarthy**, J. C. Hebden, and J. C. Christou, presented at the technical symposium "Phased Array Imaging from the Ground and Space" held at the annual meeting of the Optical Society of America, 1986, *Technical Digest*, #WG42, 87.

10. *Observations of Hubble's Variable Nebula*, J. W. Christy, U. Fink, M. Buie, and **D. W. McCarthy** 1985, *P.A.S.P.*, 97, 896. Poster paper presented at the Sumer Scientific Meeting of the Astronomical Society of the Pacific at Northern Arizona University, Flagstaff, Arizona, 25-27 June 1985.

9. *Detection of an Infrared Source Near VB 8: The First Extra-solar Planet?*, **D. W. McCarthy** and R. G. Probst 1985, *Bull. A.A.S.*, 16, 965.

8. *A Nearby Newly Resolved Low Mass Astrometric Binary*, P. A. Ianna, J. R. Rohde, and **D. W. McCarthy** 1985, *Bull. A.A.S.*, 16, 965.

7. *Super Resolution Observations with IRAS*, F. J. Low, F. C. Gillett, and **D. W. McCarthy** 1984, *Bull. A.A.S.*, 16, 498.

6. *Direct Physical Measurements of Astrometric Companions to Nearby Stars by Infrared Speckle Interferometry*, **D. W. McCarthy** 1983, *Bull. A.A.S.*, 15, 640.

5. *Infrared Detection of Low Mass Companions in Several Nearby Star Systems*, **D. W. McCarthy**, F. J. Low, and S. G. Kleinmann 1982, *Bull. A.A.S.*, 14, 777.

4. *Infrared Spatial Interferometry of Mira Variables*, **D. W. McCarthy**, F. J. Low, and R. Howell 1978, *Bull. A.A.S.*, 10, 406.

3. *Initial Results of Spatial Interferometry at 5  $\mu$ m*, **D. W. McCarthy** and F. J. Low 1975, *Bull. A.A.S.*, 7, 410.

2. *The Crater Copernicus as Seen by the Apollo17 Infrared Scanning Radiometer*, W. W. Mendell, F. J. Low, and **D. W. McCarthy** 1973, *Bull. A.A.S.*, 5, 288.

1. *Primeval Fireball Polarization*, W. F. Baron, **D. W. McCarthy**, and D. T. Wilkinson 1971, *Bull. A.P.S.*, 16, 33.

### **Education Presentations (Society Meetings and Specialized Workshops)**

78. *Reaching for the Stars: NASA Planetary and Space Science for Girl Scouts*, Harman, P. K., Friedman, W., Wendy Chin, W., Fahy, J., Henricks, J., Summer, T., White, V., **McCarthy, D.**, Lebofsky, L., Mayo, L. and Herr, E., AGU Meeting, (Dec. 2021)

77. *Planetary and Space Science for Girls: Reaching the Remote Audience*, Harman, P., Chin, W., Friedman, W., Fahy, J., Henricks, J., White, V., Summer, T., **McCarthy, D.**, Lebofsky, L., and Mayo, L., AGU meeting (Dec. 2020)

76. *Virtual Planetary and Space Science for Girls*, Harman, P., Chin, W., Friedman, W., White, V., Summer, T., Fahy, J., Henricks, J., Mayo, L., **McCarthy, D.**, and Lebofsky, L., AAS 237th Meeting, 53, abstract 412.01, (Jan. 2021)

75. *Girl Scouts and Subject Matter Experts: Making Connections*, Harman, P., Chin, W., Grisson, C., Friedman, W., **McCarthy, D.**, Lebofsky, L., Mayo, L., Fahy, J., Henricks, J., White, V., and Summer, T., 51<sup>st</sup> Lunar and Planetary Science Conference, March 2020, LPI Contribution No. 2326, #2408.

74. American Astronomical Society meeting #235, January 2020:

*Reaching for the Stars: Bringing Space Science to Young Women*, Harman, P., Chin, W., Friedman, W., **McCarthy, D.**, Lebofsky, L., White, V., Summer, T., Fahy, J., Henricks, J., and Mayo, L., #337.09.

73. *Reaching For the Stars: Bringing Space Science to Young Women*, Harman P., Fahy, J., Henricks, J., Grissom, C., Lebofsky, L., **McCarthy D.**, Friedman, W., White, V., Summer, T., Mayo, L., and Chin, W., AGU Meeting Poster, abstract ED44A-05, (Dec. 2019)
72. *Reaching for the Stars: Engaging Girl Scouts, Volunteers and Families in NASA Science*. Harman, P., Chin W., Grissom C., Friedman W., **McCarthy D.**, Lebofsky, L., Mayo L., Fahy J., Henricks J., White V., Summer T., Bass-Rockman K., and Patel-Rockman R. Poster: NASA SciAct Annual Meeting 2019.
71. American Astronomical Society meeting #233, January 2019,  
*Girl Scout Space Science Badges for Daisies, Brownies, and Juniors*, Harman, P., Chin, W., Grissom, C., Friedman, W., **McCarthy, D.**, Lebofsky, L., Mayo, L., Fahy, J., Kersh, E., Henricks, J., White, V., and Summer, T., #147.10.
- 68-70. *Advancing Astronomy for All*, Proceedings of a conference held in the California Wine Country, Sonoma Valley, California, ASP Conference Series, 524, Oct. 2018, Edited by G. Schultz, J. Barnes, and L. Shore.
- Engage with Girl Scout and their Space Science Badges*, Harman, P., Chin, W., Grissom, C., DeVore, E., Fahy, J., Henricks, J., Kersh, E., Summer, T., White, V., **McCarthy, D.**, Lebofsky, L., and Mayo, L., p. 265.
- Building Girl Scout Space Science Badges, Bridges and Teams*, Harman, P., Chin., Grissom, C., Friedman, W., Fahy, J., Henricks, J., Kersh, E., Summer, T., White, V., **McCarthy, D.**, Lebofsky, L., and Mayo, L., p. 171.
- Building Community Around Girl Scout Space Science Badges*, Fahy, J., Henricks, J., Harman, P., White, V., Summer, T., Berg, J., Chin, W., Grissom, C., Friedman, W., **McCarthy, D.**, Lebofsky, L., Mayo, L., and Kersh, E., p. 59.
67. American Astronomical Society, October 2018, DPS meeting #50:  
*Girl Scout Badges: Engaging Girls in Planetary Science*, Harman, P., Chin, W., Grissom, C., Friedman, W., **McCarthy, D.**, Lebofsky, L., Mayo, L., Fahy, J., Kersh, E., Henricks, J., White, V., and Summer, T., #202.03.
66. *Girl Scouts and Subject Matter Experts: What's the Connection?*, Harman P., Chin W., Friedman W. et al, 231<sup>st</sup> AAS Winter Meeting 2018, abstract 131.06.
- 63-65. *Advancing Astronomy for All*, 2018 Astronomical Society of the Pacific, Conference Series, 524,
- Engage with Girl Scouts and their Space Science Badges*, Harman, P., Chin, W., Grissom, C., DeVore, E., Fahy, J., Henricks, J., Kersh, E., Summer, T., White, V., **McCarthy, D.**, Lebofsky, L., and Mayo, L., p. 265
- Girl Scout Space Science Badges, Bridges, and Teams*, Harman, P., Chin, W., Grissom, C., Friedman, W., Fahy, J., Henricks, J., Kersh, E., Summer, T., White, V., **McCarthy, D.**, Lebofsky, L., and Mayo, L., p. 171
- Building Community Around Girl Scout Space Science Badges*, Fahy, J., Henricks, J., Harman, P., White, V., Summer, T., Berg, J., Chin, W., Grissom, C., Friedman, W., **McCarthy, D.**, Lebofsky, L., Mayo, L., and Kersh, E., p. 59
62. *Girl Scout Badges: Engaging Girls in Planetary Science*. Harman P., Chin W., Grissom C., Friedman W., **McCarthy D.**, Lebofsky L., Mayo L., Fahy J., Kersh, E., Henricks J., White V., and Summer T., DPS 50<sup>th</sup> Annual Meeting 2018 Abstract 202.03
61. *Girl Scout Space Science Badges and Beyond: Collaborative Learning for Girls and NASA Sci Act Collaboration*, Harman, P., Chin, W., Grissom, C., Friedman, W., **McCarthy, D.**, Lebofsky, L., Mayo, L., Fahy, J., Henricks, J., Kersh, E., White, V., and Summer, T., 2018 AGU Fall Meeting, abstract ED41E-1242
60. *Reaching for the Stars: NASA Science for Girl Scouts (Girl Scout Stars)*, DeVore, E., Harman, P., **et al.** 2017, 227<sup>th</sup> AAS Meeting #229, abstract 439.04
59. *Inaugural Girl Scout Destination Astronomy Camp*, Lebofsky, L., **McCarthy, D.**, Wright, J., Wright, R., Mace, M., Floyd, C., 2017, DPS Meeting 49, abstract 116.06
58. *Girl Scout Stars: Engaging Girl Scouts in the 2017 Total Eclipse*, Harman, P., DeVore, E., **et al.**, 2017, AGU Fall Meeting, abstract ED34B-04

57. *Girl Scout Camps and Badges: Engaging Girls in NASA Science*, Harman, P., DeVore, E., **et al.**, AGU Fall Meeting, abstract ED54A-01, (Dec 2017)

56. *Results of Studying Astronomy Students' Science Literacy, Quantitative Literacy, and Information Literacy*, Buxner, S., Impey, C., Follette, K., Dokter, E., **McCarthy, D.**, Vezino, B., Formanek, M., Romine, J., Brock, L., Neiberding, M., and Prather, E., American Astronomical Society, January 2017, Bull A.A.S., 229, #213.01.

55. *Examining the Role of Numeracy in College STEM Courses: Results from the Quantitative Reasoning for College Science (QuaRCS) Assessment Instrument*, Follette, K., **McCarthy, D.**, Dokter, E., Buxner, S., and Prather, E., American Astronomical Society 227<sup>th</sup> meeting (Jan 2016), #214.03.

54. *Reaching for the Stars: NASA Science for Girl Scouts (Girl Scout Stars)*, DeVore, E., Harman, P., Berg, J., Friedman, W., Fahy, J., Henricks, J., Chin, W., Hudson, A., Grissom, C., Lebofsky, L. A., **McCarthy, D.**, Gurton, S., White, V., Summer, T., Mayo, L., Patel, R., and Bass, K., 2016, AGU Fall Meeting Abstract ED43B-0855, (Dec 2016)

53. *Leadership Workshops for Adult Girl Scout Leaders*, Lebofsky, L., **McCarthy, D.**, DeVore, E., Harman, P. Reaching Stars Team, 2016, AAS, DPS meeting #48, #417.03.

52. *Using Exoplanet Models to Explore NGSS and the Nature of Science and as a Tool for Understanding the Scientific Results from NIRCam/JWST*, Lebofsky, L., **McCarthy, D.**, Higgins, M., and Lebofsky, N., 2014, AAS, DPS meeting #46, #212.17.

49-51. Celebrating Science: Putting Education Best Practices to Work, ASP Annual Conference (August 4-6, 2014) in Burlingame, CA

*Doodling During Class: Benefits of Real-time Feedback*, **McCarthy, D.** (unpublished poster)

*The Development and Validation of an Assessment Tool for Evaluating Quantitative Literacy in Introductory Science Courses*, Follette, K., **McCarthy, D.**, Dokter, E., Buxner, S.

*RE-NUMERATE: Restoring Essential Numerical Skills and Thinking in Astronomy Education*, Follette, K., **McCarthy, D.**

47-48. American Astronomical Society, 223<sup>rd</sup> meeting, January 2014:

*How to Make a Club from Scratch: The Beginning of the University of Arizona Astronomy Club*, Robertson, A., Hardege-Ulman, K., Carleton, T., Towner, A., Walker-LaFollette, M., Beiging, J., and **McCarthy, D.**, American Astronomical Society meeting #223, #160.01, January 2014

*Science Literacy's Neglected Twin: Numeracy*, Follette, K., **McCarthy, D.**, Dokter, E.F., and Buxner, S., American Astronomical Society meeting #223, #322.05, January 2014

43-46. Ensuring STEM Literacy: a National Conference on STEM Education and Public Outreach, Proceedings of a Conference held at San Jose State University on 20-24 July, 2013. Edited by James G. Manning, Joseph B. Jensen, Mary Kay Hemenway, and Michael G. Gibbs. ASP Conference Series, 2014, vol. 483,

*Inspiration is 'Mission Critical': A Panel Discussion*, **McCarthy, D.** and Lebofsky, L., 449-457.

*Science Literacy's Neglected Twin: Numeracy*, Follette, K. and **McCarthy, D.**, pp. 31-44.

*NASA's Role in Addressing Misconceptions: Scale of Our Solar System and Other Planetary Systems*, Lebofsky, L., **McCarthy, D.**, Higgins, M., and Lebofsky, N., pp. 187-193.

*Mission and Research Scientists in NASA EPO and STEM Education: The Results of 15 Years of EPO*, Lebofsky, L., **McCarthy, D.**, Higgins, M., Mueller, B., and Lebofsky, N., pp. 375-378.

40-42. American Astronomical Society, 221<sup>st</sup> meeting, January 2013:

*Thinking Big for 25 Years: Astronomy Camp Research Projects*, Hooper, E.J., **McCarthy, D.W.**, Benecchi, S.D., Henry, T.J., Kirkpatrick, J.D., Kulesa, C., Oey, M.S., Register, J., Schlingman, W.M., #246.01.

*Lighting the Fire for 25 Years: The Nature and Legacy of Astronomy Camp*, **McCarthy, D.W.**, Hooper, E.J., Benecchi, S.D., Henry, T.J., Kirkpatrick, J.D., Kulesa, C., Oey, M.S., Regester, J., Schlingman, W.M., #246.11.

*The California-Arizona Minority Partnership for Astronomy Research and Education (CAMPARE): Astronomy Education Research*, Serna, G.E., Eckenrode, J., **McCarthy, D.**, Wallace, C.S., Prather, E.E., Brissenden, G., Rudolph, A.L., Collaboration of Astronomy Teaching Scholars (CATS), #248.06.

39. *Scientists and Educators Working Together: Everyone Teaches, Everyone Learns*, Lebofsky, L., Lebofsky, N., **McCarthy, D.**, Canizo, T., Schmitt, W., and Higgins, M., 2013, American Astronomical Society, DPS meeting #45, #117.05

38. *Using Models to Address Misconceptions in Size and Scale Related to the Earth, Moon, Solar System, and Universe*, Lebofsky, L. A., Lebofsky, N.R., **McCarthy, D.W.**, Higgins, M.L., Salthouse, K., and Canizo, T.L., 2012, AAS DPS meeting #44, #411.06.

37. *Bringing Astronomy Activities and Science Content to Girls Locally and Nationally: A Girl Scout NIRCcam Collaboration*, Lebofsky, L.A., Higgins, M.L., **McCarthy, D.W.**, and Lebofsky, N.R., 2012, 43<sup>rd</sup> Lunar and Planetary Science Conf, March 19-23, 2012 at The Woodlands, Texas. LPI Contribution No. 1659, id.1303

33-36. Communicating Science: A National Conference on Science Education and Public Outreach. Proceedings of a Conference held at Tucson, Arizona, USA 4-8 August 2012. Edited by J. Barnes, C. Shupla, J.G. Manning and M.G. Gibbs. San Francisco: Astronomical Society of the Pacific, 2013, [473](#):

*Bringing Astronomy Activities and Science Content to Girls Locally and Nationally: A Girl Scout and NIRCcam Collaboration*, Higgins, M., Lebofsky, L., **McCarthy, D.**, and Lebofsky, N., p. 355.

*Practical Lessons From the First Decade of EPO Partnership Between NIRCcam/JWST and the GSUSA*, **McCarthy, D.**, Lebofsky, L., Schlingman, W., and Higgins, M., p. 289.

*Using Models to Address Misconceptions in Size and Scale Related to the Earth, Moon, Solar System, and Universe*, Lebofsky, L. A., Canizo, T.L., Lebofsky, N.R., **McCarthy, D.W.**, Higgins, M.L., and Salthouse, K., p. 285.

*RE-NUMERATE: A Workshop to Restore Essential Numerical Skills and Thinking via Astronomy Education*, **McCarthy, D.** and Follette, K., p. 79.

32. *An Informed Approach to Improving Quantitative Literacy and Mitigating Math Anxiety in Undergraduates Through Introductory Science Courses*, Follette, K. and **McCarthy, D.**, 2012, Connecting People to Science: A National Conference on Science Education and Public Outreach. Proceedings of a conference held at Baltimore, Maryland USA 30 July - 3 August 2011. ASP Conference Series, [457](#). Edited by J.B. Jensen, J.G. Manning, M.G. Gibbs, and D. Daou. San Francisco: Astronomical Society of the Pacific, pp. 295-298

29-31. American Astronomical Society meeting #219, 2012:

*Bringing Astronomy Activities and Science Content to Girls Locally and Nationally: A Girl Scout and NIRCcam Collaboration*, Lebofsky, L., Higgins, M.L., **McCarthy, D.W.**, and Lebofsky, N.R., #350.06.

*The California-Arizona Minority Partnership for Astronomy Research and Education (CAMPARE): Partnering Students to Astronomy at the University of Arizona's Astronomy Camp*, Saldivar, H., **McCarthy, D.**, and Rudolph, A.L., #147.04.

*Fostering the Development of Quantitative Life Skills Through Introductory Astronomy: Can it be Done?* Follette, K., and **McCarthy, D.W.**, #227.01.

27-28. American Astronomical Society, 217<sup>th</sup> meeting, Jan 2011:

*The California-Arizona Minority Partnership for Astronomy Research and Education (CAMPARE): An Educational Experience for Undergraduates at the University of Arizona Alumni Association's Astronomy Camp*, Lemon, C., **McCarthy, D.**, and Rudolph, A., Bull AAS, [43](#), #145.07.

*Nurturing The STEM Pipeline: Graduate Student Leadership In NIRCcam's Ongoing E/PO Mission For JWST*, Schlingman, W., Stock, N., Teske, J., Tyler, K., Biller, B., Donley, J., Hedden, A., Knierman, K. and Young, P., Bull AAS, [43](#), #431.01. (authored by **McCarthy** but not delivered by him)

25-26. Earth and Space Science: Making Connections in Education and Public Outreach. Proceedings of a conference held at the University of Colorado, Boulder, Colorado, USA 31 July-4 August 2010. San Francisco: Astronomical Society of the Pacific, 2011,[443](#):

*Near Infrared Camera (NIRCAM): Making Models, Building Understanding*, **McCarthy, D.**, Lebofsky, L., Higgins, M., and Lebofsky, N., pp. 280-283.

*A Portable/Traveling Human Orrery*, Lebofsky, L. A., **McCarthy, D. W., Jr.**, Higgins, M. L., Lebofsky, N. R., p. 63.

24. *Near Infrared Camera (NIRCam): Making Models, Building Understanding*, Lebofsky, L., **McCarthy, D.**, Higgins, M., and Lebofsky, N., 41st Lunar and Planetary Science Conference, held March 1-5, 2010 in The Woodlands, Texas. LPI Contribution No.1533, p. 1856.

23. *James Webb Space Telescope's Near Infrared Camera (NIRCam): Making Models, Building Understanding*, Lebofsky, L., **McCarthy, D.**, Higgins, M., and Lebofsky, N., 2010, DPS meeting #42, #37.01, Bull. AAS, [42](#), 967.

22. *Astronomy Camp = IYA x 22: 22 Years of International Astronomy Education*, Hooper, E., **McCarthy, D.**, and Camp staff, 2010, American Astronomical Society, AAS Meeting #215, #445.09, Bull. A.A.S., [42](#), p. 412.

21. *The James Webb Space Telescope's Near-Infrared Camera (NIRCam): Making Models, Building Understanding*, **McCarthy, D.**, Lebofsky, L. A., Higgins, M. L., Lebofsky, N. R., Earth and Space Science: Making Connections in Education and Public Outreach. Proceedings of a conference held at the University of Colorado, Boulder, Colorado, USA 31 July-4 August 2010. San Francisco: Astronomical Society of the Pacific, 2011, p. 280.

20. *Astronomy Patch Day: An Interactive Astronomy Experience for Girl Scouts*, K. Knierman, **D. McCarthy**, and K. Schutz, 2005, American Astronomical Society, AAS Meeting #207, #67.02, Bull AAS, [37](#), 1263.

17-19. Astronomical Society of the Pacific 117<sup>th</sup> Annual Meeting, 2005, "Building Community: The Emerging EPO Profession":

*Astronomy Camp*, **D. McCarthy**, E. Hooper, C. Kulesa, and J. Regester

*Linking Girls to the Sky: NIRCam/JWST's National Outreach to the Girl Scouts*, **D. McCarthy**

*Astronomy Patch Day: An Interactive Astronomy Experience for Girl Scouts*, K. Knierman, **D. McCarthy**, K. Schutz

16. *NIRCam/JWST Education and Public Outreach: "Linking Girls to the Sky"*, K. Knierman, P. Young, **D. McCarthy**, L. Lebofsky, Conference on Women in Astronomy II. Poster

15. *Science Education with LSST*, Astronomical Society, Jacoby, S., Khandro, K., Larson, A., **McCarthy, D.**, S. Pompea, S., and Shara, M., American Astronomical Society, 205th annual meeting, 2004, Bull. A.A.S., [36](#), #5, p.1531.

13-14. American Geophysical Union Fall meeting, San Francisco, CA, December 2003:

*Implementing Authentic Astronomy Research in the Classroom: The TLRBSE Experience*, S. Pompea, S. Croft, C. Walker, J. Lockwood, and **D. McCarthy**

*Solar Astronomy as a Means to Promote Authentic Science Research in a Teacher Professional Development Program*, C. Walker, S. Croft, S. Pompea, C. Plymate, and **D. McCarthy**, #ED52A-01.

12. *NIRCam/NGST Education and Public Outreach: "Linking Girls with the Sky,"* **D. McCarthy**, L. Lebofsky, T. Slater, M. Rieke, and S. Pompea, 2002, DPS meeting #31.06, Bull. A.A.S., [34](#), 896.

11. *Solar Data in the Classroom: The TLRBSE Experience*, S. Pompea, C. Walker, S. Croft, and **D. McCarthy**, 2002, AGU meeting (session = Geophysics Data in the Classroom), Eos Trans. AGU, 83(47), ED11A-0033.

10. *Teacher Leaders in Research Based Science Education*, T. Rector, S. Jacoby, J. Lockwood, and **D. McCarthy**, American Astronomical Society, 199th annual meeting, 2001, Bull. A.A.S., [33](#), #4, 1343.

8-9. American Astronomical Society, 198th annual meeting, 2001, Bull. A.A.S., [33](#), #2:

*The Use of Astronomy in Research-Based Science Education*, T. Rector, S. Jacoby, J. Lockwood, and **D. McCarthy**, 820.

*Teacher-Leaders in Research-Based Science Education*, T. Rector, S. Jacoby, J. Lockwood, and **D. McCarthy**, 809.

7. *The Use of Astronomy in Research Based Science Education*, T. Rector, S. Jacoby, J. Lockwood, and **D. McCarthy**, American Astronomical Society, 194th annual meeting, 1999, Bull. A.A.S., 31, #3: 940.

6. *Steward Observatory Student Radio Telescope*, C.K. Walker, B. Jones, J. Clarke, C.E. Walker, **D. McCarthy**, 1999, National Radio Science Meeting (Boulder, CO)

5. *The Use of Astronomy in Research Based Science Education*, S. Jacoby, J. Lockwood, and **D. McCarthy**, American Astronomical Society, 191st meeting, 1998, Bull. A.A.S., 29, #5: listed in late paper titles, p. 8.

4. *A "Road Map" for Science Education*, **D. W. McCarthy**, 1996, Announcer, (American Association of Physics Teachers, winter meeting, Jan. 1997), 26, 87.

3. *Learning by Doing - An Astronomical Research Course for Secondary Schools: A University/High School Collaboration*, J. F. Lockwood, **D. W. McCarthy**, S. Baliunas, 1991, Bull. A.A.S., 22, 1236.

2. *Research Oriented Summer Astronomy Camp for Teenagers*, **D. W. McCarthy**, K. Dow, T. J. Henry, D. Kirkpatrick, J. Morrill, D. Iadevaia, L. Dunlap, 1990, Bull. A.A.S., 22, 737.

1. *Astronomical Research in the High School Classroom: A University-High School Research Partnership*, J. F. Lockwood, **D. W. McCarthy**, 1989, Bull. A.A.S., 21, 1066.

## **Research Funding categorized by science & education**

### **Scientific Funding**

#### **NASA:**

*"Near Infrared Camera for JWST (NIRCam)"*, Dr. M. Rieke, NASA, NAS5-02105, 7/02 to 12/2018 (Phases A-E), \$324,784,805

*"Probing the Gas Content of Terrestrial and Giant Planet Forming Regions of Protoplanetary Disks"*, J. Eisner and D. McCarthy, .....

*"An Infrared Study of Spacecraft Targeted Comets"*, H. Campins, M. Belton, S. Larson, D. McCarthy, D. Britt, 4/1/01-3/31/04, \$155,500

*"Interferometry with the Large Binocular Telescope"*, NASA/JPL # 1226582, 05/29/01 – 1/07, \$4,134,126

*"The First Nulling & Simultaneous Differential Imaging Survey for Massive Planets Around Nearby Stars"*, NASA #NAG5-12086, 05/01/02 – 4/30/05, \$235,577

*"Nulling interferometry at the Large Binocular Telescope in support of TPF"*, P. M. Hinz, J.R.P. Angel, W.F. Hoffmann, D.W. McCarthy, N.J. Woolf, 10/1/00-9/3/04, \$5,000,000

*"The Development of a Mission and Technology Roadmap for the Exploration of Neighboring Planetary Systems"*, J.R.P. Angel (PI) and 27 other investigators, 4/95, \$140,000.

*"Calibrating The Mass-Luminosity Relation at the End of the Main Sequence"*, D. McCarthy's part of Hubble Space Telescope's observations, T. J. Henry, GO-06047.06-94A, 10/95-9/96, \$5,119 (year 1 of 3).

*"Near Infrared Observations of Titan's Lower Atmosphere"*, P. Smith, M. Lemmon, and D. McCarthy, 10/94-9/95, \$50,199.

*"Near-Infrared Camera and Multi-object Spectrometer (NICMOS) Guaranteed Time Observer"*, R. Thompson et al., NAG5-3042, 8/95-3/2001, \$26,007,930

*"Observational & Theoretical Studies of Circumstellar Material at Very High Spatial*

*Resolution,*” Origin of Solar Systems Program, McCarthy, NAGW 2254, 11/90-11/93, \$75,717.

“*Detector Evaluation for a Deep Optical/Infrared Survey and Second Generation Space Telescope Instruments,*” M. Rieke, D. McCarthy, G. Rieke, and R. Thompson, 2/90-3/91, \$200,000.

**NSF:**

“*Innovative Multiband Filters,*” Rhoads, J., Malhotra, S., Scowen, P., and McCarthy, D. NSF, #1006993, 9/10-9/13, \$400,000

“The 20/20 Telescope – A New Concept for the GSMT,” NSF #AST-0138347, 7/01/02 – 7/07, \$1,898,586

“*Computed Tomography Imaging Spectrometer for Astronomical Applications,*” E. Hege, D. McCarthy, E. Dereniak and M. Descour, 2000, two years, \$431,821

“*Advanced Instrumentation for Adaptively Corrected...,*” NSF #AST9731178, 09/01/98 – 8/31/04, \$1,004,238

“*Advanced Instrumentation for Adaptively Corrected Telescopes: Detection of Faint Stellar Companions and High Resolution Spectroscopy,*” M. Lloyd-Hart, J. Angel, D. Sandler, D. McCarthy, and R. Fugate, 4/1/98-3/31/01, \$1,589,147

“*High Resolution Infrared Imaging at the 6.5m MMT with Adaptive Optics,*” D. McCarthy, 7/96-6/98, AST-9623788, \$699,061.

“*Adaptive Optics and High Resolution Imaging,*” D. McCarthy, J.R.P. Angel, 6/92-9/95, AST-9203336, \$1,041,893.

“*Two-Dimensional Infrared Speckle Imaging,*” McCarthy, 4/1/89-3/31/92, AST-8822465, \$304,900.

“*Applications of Array Detectors in Infrared Spatial Interferometry,*” McCarthy and Low, 4/86-4/89, AST-8519506, \$422,200.

“*Implementing New Capabilities of the Multiple Mirror Telescope: Operation in the Thermal Infrared and as a Coherent Array,*” M. Lebofsky and D. McCarthy, 5/86-10/88, AST-8418188, \$290,500.

“*Infrared Spatial Interferometry,*” F. Low and D. McCarthy, 2/15/83-9/30/86, AST-8218782, \$361,066.

“*Infrared Spatial Interferometry: A Phased-Photometer for the MMT,*” F. Low, 6/15/81-3/31/83, AST-8108431, \$142,800.

“*Continued Development of Spatial Interferometry at Infrared Wavelengths,*” F. Low, 6/1/79-10/30/81, AST-7902869, \$216,700.

“*Development of Spatial Interferometry at Infrared Wavelengths,*” F. Low, 3/1/77-8/31/79, AST-7701261, \$200,000.

**Space Telescope Science Institute - AURA, Inc.:**

“*Completing a Near-Infrared Search for Very Low Mass Companions to Stars within 10 pc,*” T. Henry, D. Golimoski, J. Krist, C. Burrows, H. Ford, D. McCarthy, and D. Schroeder, GO 7894, 145 orbits in Cycle 7+

“*Grisp Spectra of Centaurs and TNO’s from 1-2 Microns,*” D. McCarthy, H. Campins, S. Stolovy, B. Brown, \$31,414, GO 7822, 8 orbits in Cycle 7+  
supplemental funding in 2000, \$17,672, added M. Buie as co-I

“*A High-Resolution Proper Motion Study of the Ionized Gas Near Sgr A\*,*” S. Stolovy, F. Melia, F. Yusef-Zadeh, and D. McCarthy, GO 7842, 4 orbits in Cycle 7+

“*Mineralogic Mapping of the Surface of Asteroid 4 Vesta,*” 7/1/97-10/31/98, D. McCarthy plus nine collaborators, \$21,234, GO 7443, 8 orbits in Cycle 7

“*The Formation of Young Solar-Type Multiple and Single Stars,*” D. W. McCarthy and A. Ghez, Hubble Fellowship for Ghez, HF-1031.01-92A, 10/92-9/93, \$65,048.10/93-9/94, \$62,940.

**Air Force Office of Scientific Research:**

“*Exploiting Adaptive Optics with Deformable Secondary Mirrors; Development of Tomographic Laser Guide Star Wavefront Sensing at the 6.5m MMT and Laser Adaptive Optics at the 6.5m MMT Telescope: High Resolution Imaging of Thermal Sources and Spacecraft,*” AFOSR F49620-01-1-0383, 15 May 01 –31 July 05, \$8,155,000

"Advanced Adaptive Optics Development at the 6.5m MMT Telescope," M. Lloyd-Hart, P. Hinz, J. Angel, L. Close, D. McCarthy, 6/1/02-10/31/03, \$2,040,334

## **Education Funding**

### **Astronomical Society of the Pacific:**

"A Portable/Traveling Human Orrery," McCarthy, D., Lebofsky, L., and Lebofsky, N., \$2,480 (9/09 to 9/10), Simple Effective Education and Dissemination (SEED) Grants For Astronomy Researchers, (money directed to Tucson's Sahuaro Girl Scout Council).

### **Arizona Board of Regents:**

"STOP-LITE: Science Teachers Observing Pollution - Light Interference Tracking Experiment," L. Lebofsky, D. McCarthy, N. Lebofsky, T. Potter, J. Becker, D. Davis, March 1, 1999 - February 29, 2000, \$49,865.

### **NASA:**

"Reaching for the Stars," McCarthy D., and Lebofsky, L., Jan 2016-Jan. 2021, \$677,695.

"Near Infrared Camera (NIRCam) E/PO," Dr. M. Rieke, NASA, NAS502105, 7/02-4/30/2024 (Phases A- E), NAS5-02105, \$466,115,825, (McCarthy is the E/PO leader)

Total expended for E/PO program (2001-2014): \$863,254

"Nature of Light Through the Eyes of the Hubble Space Telescope," STScI, HST-EO-10639.06, 1/06-2/08, \$19,900

"Internet Tools for Research Based Science Education," IDEA proposal, T. Rector, J. Lockwood, D. McCarthy, and S. Jacoby, 4/1/99-3/31/01, \$26,396.

"NICMOS: Opportunities for High School Research," NASA Initiative to Develop Education through Astronomy (IDEA) grant, D. McCarthy, 1/1/95, \$5,995.

"Variable Star Research for Pre-College Students," D. McCarthy and J. Lockwood, 9/91-8/92, Supplement, \$5,025.

### **NSF:**

"An Informed Approach to Improving Quantitative Literacy and Mitigating Math Anxiety in Undergraduates through Introductory Science Courses," D. McCarthy, K. Follette, and E. Dokter, # 1140398, 9/1/12-8/31/15, \$199,535.

"Teacher Leaders in Research Based Science Education," S. Jacoby, J. Lockwood, D. McCarthy, and T. Rector, 5/1/01-4/30/06, \$2,496,850.

"The Use of Astronomy in Research Based Science Education," S. Jacoby, J. Lockwood, and D. McCarthy, 3/1/97-2/28/2001, \$494,189.

"Astronomy Related Teacher In-Service Training (ARTIST)," Lebofsky, Dunlap, and McCarthy, 3/92-6/95, \$975,000.

"Adaptive Optics and High Resolution Imaging," McCarthy, 10/1/92-9/30/93, (REU Award), \$12,100.

"Two-Dimensional Infrared Speckle Imaging - Research for Undergraduates," D. McCarthy (PI) and Diana Johnson, 9/26/91-9/30/92, Supplement for undergraduate education, \$6,050.

NSF Program Director added \$6,050 to research grant for PI educational projects, REU awards, 4/1/89-3/31/92

### **Research Corporation:**

"Research in the Classroom - A National Curriculum Program Phase II - Expansion and Networking Research Projects Across the United States," Lockwood, McCarthy, and Roth, \$40,000, \$9,000, 22 July, 1993 (temp. funding)



“*Speckle Interferometry of Nearby Red Dwarf Stars Using an InSb 2D Infrared Camera*,” McCarthy and Lockwood, 2/93, \$2,895.

“*A New National Science Curriculum: Doing Research in High School Classrooms*,” McCarthy and Lockwood, 6/91-6/93, \$19,500.

“*High Resolution Imaging of Low Mass Companions to Nearby Stars*,” McCarthy and Lockwood, High School - College Research Partnership Program; also a “Flinn Foundation Grant of the Research Corporation”

summer of 1990 \$6,000

summer of 1989 \$5,500 (plus a \$1,000 supplement)

summer of 1988 \$5,000

## Graduate Students Supervised or Mentored

In addition to the following graduate students, I provided access to IR observing instruments (PISCES, ARIES) on many telescopes (LBT, MMT, 90”, 61”, McMath-Pierce, Star Fire) and supported the IR observations of many graduate students, and faculty.

Kate Follette	(Ph.D. 2014)
Wayne Schlingman	(Ph.D. 2012)
Karen Knierman	(Ph.D. ASU 2012 Arizona/NASA Space Grant Fellowship mentor)
Jackie Monkiewicz	(Ph.D. ASU ~2018 instrumentation projects and observing support)
Koby Smith	(Masters, Optical Sciences)
Margaret Turnbull	(Ph.D. 2004; NSF CATTs mentor)
Rose Finn	(Ph.D. 2003; NASA Fellowship mentor)
Jorge Carvano	(Brazil)
Joannah Hinz	(Ph.D. 2003)
Phil Hinz	(Ph.D. 2001)
Subu Mohanty	(Ph.D. Harvard ~2002)
Laird Close	(Ph.D. 1996)
Dave Wittman	(Ph.D. 1997)
Jeff Lockwood	(Ph.D. Education, 1994)
Davy Kirkpatrick	(Ph.D. 1992)
Brian McLeod	(through second year project)
Todd Henry	(Ph.D. 1991)
Jonathan Freeman	(Ph.D. 1990; Applied Math)

## Service

### Service (Department)

Education and Public Outreach listed separately

2019-2022	Director of Undergraduate Majors Program
2001-2022	NIRCam on James Webb Space Telescope: Science team & E/PO leader NICMOS on Hubble Space Telescope: Science team member
2014-now	Presented weekly “Question of the Day” to Astronomy Club
2020-now	Provided weekly “rooftop observing” sessions for students (science & non-science majors)

Observing Support:

1998-2013	PISCES wide-field IR camera; 522 nights on 1.5, 2.3, and 6.5m MMT ~50 observers (grads, postdocs, UA/ASU/NAU faculty, Public Access)
2011-2013	PISCES wide-field IR camera served as primary AO-camera on LBT
2001-2014	ARIES IR camera/spectrometer on MMT with adaptive optics ~35 observers (grads, postdocs, UA/ASU/NAU faculty, Public Access) AO engineering for NGS and Laser Guide Stars

Past Committees:

Academic Program  
Awards

Center for Astronomical Adaptive Optics  
Diversity and Inclusion

MMT Council  
Peer Teaching Evaluation  
Promotion and Continuing Status  
Telescope Allocation (1985-1988; 2004-2009) [Chair 1987; 2006-2009; 2018-2019]

Chair (2009-2012; 2015-2022)

## Service (University)

Education and outreach listed separately

Past Committees:

College of Science Climate Committee  
Faculty Fellow serving in residence halls (Coconino, Coronado Halls)  
Math Dept. Committee on Promotion and Continuing Status (chair)  
Provost's Committee on Promotion & Continuing Status  
Faculty of Science Promotion & Tenure

## Service (National)

E/PO listed separately

Past Committees:

American Astronomical Society:  
Chambliss Book Award  
Graduate workshop facilitator for discussion of Professional Masters' Program  
DPS Local Organizing Committee in charge of Education Program for Oct. '96  
Education

Member of Hubble Space Telescope Decade II Panel

National Science Foundation review panel for ...  
Adaptive Optics Development Program (AODP)  
ATI  
Small Business Innovation Research proposal  
Instrumentation Proposal Review Panel (chair)

SIRTF Science Working Group  
Gemini Adaptive Optics Working Group  
Interferometry Panel of the Astronomy and Astrophysics Survey  
NOAO 8m telescope interferometry steering group  
Kitt Peak User's Committee  
NNTT infrared imaging/photometry team member

## Courses Taught & Created

### University of Arizona

Teacher and Course Evaluations, and rankings, available here:

<https://scsonline.oia.arizona.edu/index.php>

Supported preceptors in every course via Teaching Teams Program or Independent Study

Honor's Contracts	several per year
Honor's First Year Projects	several per year
Student-Faculty Interaction	several activities every semester
AST 100	1991, 1993, 1994, 1996, 1997
ASTR 170B1 (The Physical Universe)	2003-2021 additional section for Schedule for Success students a "buffer course" for Center for English as a Second Language students also attended by Taglit program for disability students
ASTR 196 (Astron. Problem Solving)	2014-2022 (created the course)
ASTR 199 (Independent Study)	

ASTR 201	(Cosmology)	2004-2022 also attended by Taglit program for disability students
ASTR 296	(seminar guest lecturer)	annual lecture
ASTR 337	(Connecting with the Sky)	2015-2022 (created the course)
ASTR 392	(Independent Study)	
ASTR 398	(Honors Research)	2022
ASTR 400a	(Theor Astrophy: Stars)	1995 (substitute)
ASTR 400b	(Theor Astrophy: Galaxies)	2021
ASTR 492	(research)	2021-2022
ASTR 499	(Independent Study)	many
ASTR 418/518	(Instrumentation)	guest lecturer; provide CCD-spectrometer
ASTR 597	(NOAO's TLRBSE)	2003,2004; online course with 20 educators (helped create)
HNRS 595H	(Kissling course)	2003
HNRS 195I	(Profiles in Curiosity)	2014-2015 (created the course)
NATS 102	(The Physical Universe)	1999- 2001, 2003-2005 - designated a "buffer course" for Center for English as a Second Language students
UNVR & LASC 197		collaborating courses for preceptors

### **Arizona State University**

~1972 Course instructor while a graduate student at the University of Arizona

### **Pima Community College (West campus)**

ASTR 101	Astronomy	2002
ASTR 102	Solar System	2002

## **Education/Outreach Activities (University)**

Current Committees:

Advisory Boards:

Women in Science & Engineering  
Univ. Arizona NASA Space Grant Consortium

Past Activities:

Faculty advisor:

Twirling Line Club  
Campus Crusade for Christ  
Wildcats for Christ

Advising Center for Exploratory Students (ACES)

Flinn Scholarship Program

Final Ph.D. examination committees:

Ms. T. Cañizo (Education, 2001)  
Mr. J. Lockwood (Education, 1994)

Workshop at Teaching Academy about Quantitative Literacy  
Pre-Health Interview Committee  
Science and Math Education Center (SAMEC) Committee  
Future Science Teachers' Research Program  
State review panel for Eisenhower Science & Math proposals  
Committee on the Earth Science Teaching Majors  
Faculty of Science Undergraduate Majors  
University Science Teachers' Colloquium Series  
Honors Dialogue Program

## **Education/Outreach Activities (Community)**

Current Activities:

Sun City Vistoso Astronomy Club: Speaker & student support at Astronomy Camps

Past Activities:

Yearlong telescope building project at Pueblo High School (100 students/faculty)

Project ASTRO at NOAO  
Coronado K-8 school (Astronomy Camp w/ Sun City Vistoso)  
funded \$10K scholarships to Boys & Girls Club to Astronomy Camp  
Discovery Park Science Center - helped design and plan exhibits and educational themes  
Ongoing invited talks/demonstrations/tours/career-shadowing in local schools. Over  
100 school visits (pre-school - college), usually with multiple presentations.

## **Education/Outreach Activities (National)**

Past Committees:

ASP Awards Committee member (Chair)  
Publication Committee (Chair)

Past Activities:

Board of Directors of the Astronomical Society of the Pacific (ASP; 2009-2012)  
chair of awards and publication committees  
Nominating Committee  
“Research-Based Science Education” at NOAO  
Div. Planetary Science (DPS) Local Organizing Committee for Education Program

## **“Astronomy Camps”**

The Astronomy Camp programs pioneered a unique research-based approach to STEM education. Using the Sky Island environments of observatories in the Catalina mountains and at Kitt Peak National Observatory, Astronomy Camp provides authentic, "immersion" experiences. Since 1988, thousands of Campers from all U.S. states and 20 foreign countries “became scientists,” residing at the mountaintop observatories, operating research-class telescopes and technology, keeping nighttime hours, interacting with leading scientists, interpreting their own observations, investigating their own questions and curiosities, and most importantly having fun doing so. More than 30 Camp alumni received Ph.D. degrees in a variety of fields. In Astronomy alone, our alumni are now Professors and Directors of major programs at over 50 universities and 10 national labs. The Campers, and their families, provided unexpected benefits to The University of Arizona, including capital improvements and the enrollment of ~70 new undergraduate and graduate students, new faculty, postdoctoral fellows, and engineering staff. The Astronomy Camp infrastructure and educational approach were leveraged heavily in UArizona’s successful NASA proposal to build NIRCam for the James Webb Space Telescope (below).

<http://www.astronomycamp.org/>

## **NIRCam/JWST Mission education program with the GSUSA**

The University’s original NASA proposal (2001) to build NIRCam for the James Webb Space Telescope required an official education proposal comprising 1-2% of the total budget. Using the Astronomy Camp heritage and infrastructure (above), we proposed a formal national partnership with the Girl Scouts of the USA (GSUSA) to (1) improve STEM education for young women (K-14); (2) train their adult leaders in astronomical concepts relevant to JWST/NIRCam; (3) develop associate STEM activities for use at Troop-levels; and (4) build a long-term relationship between NIRCam-GSUSA that could quickly and effectively promote scientific discoveries from JWST.

From 2002-2019, we conducted 34 “Train the Trainer” in-person workshops for GSUSA leaders at our Mt. Lemmon Observatories, Biosphere 2, and our local GS Council’s facilities. These 397 leaders represent 98 of the 112 official Councils in 47 U.S. states, D.C., Guam, Japan, and Puerto Rico. In 2015, we continued our in-person workshops with the SETI Institute and helped develop the first-ever Space Science badges (6) for all age levels. We continue to support 274 of these leaders via a monthly Newsletter and often provide assistance with their special events.

To date, NIRCam's E/PO partnership with the GSUSA has led to 34 national presentations and publications and, as mentioned above, to six Space Science badges engaging millions of young girls and women in the science of astronomy.

<https://lavinia.as.arizona.edu/~dmccarthy/GSUSA/index.html>

## **Personal**

### **Military Service**

1970-1978 U.S. Army Reserve (Captain; Signal Corps)

1976 Signal Corps Officer Basic Course (Class leader of 70 officers; August, GA)

Awards:        *“The Distinguished Graduate”*

1966-1970    Army R.O.T.C. - Princeton University

Awards:        *“Distinguished Military Graduate”*  
*Lt. Col. John U. D. Page Award*

**Finalist:**

1977            NASA’s original selection of Space Shuttle Mission Specialist (Astronaut Candidate)