

Scott S. Sheppard

Curriculum Vitae

Personal Data

Department of Terrestrial Magnetism, Carnegie Institution for Science

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Education

Ph.D.	Astronomy	University of Hawaii	2004
	<i>Thesis: Small Bodies in the Outer Solar System</i>		
M.S.	Astronomy	University of Hawaii	2001
B.A.	Physics with Honors	Oberlin College	1998

Professional Experience

Faculty Member:	Carnegie Institution for Science, DTM	7/07-present
Hubble Fellow:	Carnegie Institution of Washington, DTM	9/04-7/07
Research Assistant:	Institute for Astronomy, University of Hawaii	5/99-9/04
Teaching Assistant:	Physics and Astronomy, University of Hawaii	8/98-5/99
Mechanical Engineer:	Genencor International	5/98-8/98
Honors Student:	Department of Physics, Oberlin College	8/97-5/98
	<i>Project: Determination of Stress in Sputtered Molybdenum Thin Films by X-ray diffraction and Geometric Optics</i>	
Tutor:	Modern Physics, Oberlin College	8/97-12/97
Research Fellow:	Department of Astronomy, University of Minnesota	5/97-8/97
	<i>Project: A Telescope Guidance System</i>	
Research Assistant:	Department of Physics, Bucknell University	5/96-8/96
	<i>Project: The Dust Tail of Comet P/Halley</i>	
Laboratory Assistant:	Department of Physics, Oberlin College	2/96-5/96
Research Assistant:	NASA Lewis Research Center	12/95-2/96
	<i>Project: Attenuation of Microwave Transmission Lines</i>	
Research Assistant:	Department of Physics, Oberlin College	8/95-12/95
	<i>Project: The Efficiency of Solar Cells</i>	

Honors

2001 ARCS Scholar of the year

2003 ARCS Scholar of the year

Hubble Fellow

Asteroid (17898) named Scott Sheppard

Research Interests

Small Bodies in the Solar System: comets, asteroids, moons and Kuiper Belt objects

Brown Dwarfs, Low Mass Stars and the Solar Neighborhood

Star, Planet and Solar System Formation

Refereed Publications for Scott S. Sheppard

- Thirouin, A. and Sheppard, S. “The Plutino Population: An Abundance of Contact Binaries” 2018, *AJ*, 155, 248.
- Chandler, C., Curtis, A., Mommert, M., Sheppard, S., and Trujillo, C. “SAFARI: Searching Asteroids For Activity Revealing Indicators” 2018, in press.
- Henry, H., Ishiguro, M., Knight, M., Micheli, M., Moskovitz, N., Sheppard, S. and Trujillo, C. “The Reactivation and Nucleus Characterization of Main-Belt Comet 358P/PANSTARRS (P/2012 T1)” 2018, arXiv:180509353.
- Tinney, C., Kirkpatrick, J., Faherty, J.... Sheppard, S., et al. “New Y and T dwarfs from WISE identified by Methane Imaging” 2018, *ApJS*, 236, 28.
- Belton, M., Hainaut, O., Meech, K.... Sheppard, S., et al. “The Excited Spin State of 11/2017 U1 ‘Oumuamua” 2018, *ApJ*, 856, 21.
- Thirouin, A. and Sheppard, S. “A Possible Dynamically Cold Classical Contact Binary: (126719) 2002 CC249” 2017, *AJ*, 154, 241.
- Thirouin, A., Sheppard, S. and Noll, K. “2004 TT357: A Potential Contact Binary in the Trans-Neptunian Belt” 2017, *ApJ*, 844, 135.
- Fraser, W., Bannister, M., Pike, R.... Sheppard, S., ..et al. “All Planetesimals Born Near the Kuiper Belt Formed as Binaries” 2017, *Nature Astronomy*, 1, 88.
- Sheppard, S. and Trujillo, C. “New Extreme Trans-Neptunian Objects: Towards a Super-Earth in the Outer Solar System” 2016, *AJ*, 152, 221.
- Kaib, N. and Sheppard, S. “Tracking Neptune’s Migration History Through High-Perihelion Resonant Trans-Neptunian Objects” 2016, *AJ*, 152, 133.
- Sheppard, S., Trujillo, C. and Tholen, D. “Beyond the Kuiper Belt Edge: New High Perihelion Trans-Neptunian Objects with Moderate Semi-major Axes and Eccentricities” 2016, *ApJ Letters*, 825, L13.
- Thirouin, A., Sheppard, S., Noll, K. Moskovitz, N., Ortiz, J. and Doressoundiram, A. “Rotational Properties of the Haumea Family Members and Candidates: Short-Term Variability” 2016, *AJ*, 151, 148.
- Kirkpatrick, J., Kellog, K., Schneider, A.... Sheppard, S., ..et al. “The AllWISE Motion Survey, Part 2” 2016, *ApJ Suppl*, 224, 36.
- Hsieh, H. and Sheppard, S. “The reactivation of main-belt Comet 324P/La Sagra (P/2010 R2)” 2015, *MNRAS Letters*, 454, L81.

Drahus, M., Waniak, W., Tendulkar, S., Agarwal, J., Jewitt, D. and Sheppard, S. “Fast Rotation and Trailing Fragments of the Active Asteroid P/2012 F5 (Gibbs)” 2015, ApJ, 802, L8.

Sheppard, S. and Trujillo, C. “Discovery and Characteristics of the Rapidly Rotating Active Asteroid (62412) 2000 SY178 in the Main Belt” 2015, AJ, 149, 44.

Trujillo, C. and *Sheppard, S.* “A Sedna-like Body with a Perihelion of 80 Astronomical Units” 2014, Nature, 507, 471-474.

***Co-First Authors**

Luhman, K. and Sheppard, S. “Characterization of High Proper Motion Objects from the Wide-Field Infrared Survey Explorer” 2014, ApJ, 787, 126.

Schneider, A., Cushing, M., Kirkpatrick, D., ..Sheppard, S. “Discovery of the Young L Dwarf WISE J174102.78-464225.5” 2014, AJ, 147, 34.

Burgasser, A., Sheppard, S. and Luhman, K. “Resolved Near-Infrared Spectroscopy of WISE J104915.57-531906.1AB: A Flux-Reversal Binary at the L dwarf/T dwarf Transition” 2013, ApJ, 772, 129.

Benecchi, S. and Sheppard, S. “Light Curves of Large Southern Hemisphere Kuiper Belt Objects” 2013, AJ, 145, 124.

Person, M., Dunham, E., Bosh, A., ..Sheppard, S., .. et al. “The 2011 June 23 Stellar Occultation by Pluto: Airborne and Ground Observations” 2013, AJ, 146, 83.

Hsieh, H., Kaluna, H., Novakovic, B., ..Sheppard, S., .. et al. “Main-Belt Comet P/2012 T1 (PANSTARRS)” 2013, ApJ Letters, 771, 1.

Parker, A., Buie, M., Osip, D., ..Sheppard, S., .. et al. “Discovery of a High-Inclination L5 Neptune Trojan in the Search for a Post-Pluto New Horizons Target” 2013, AJ, 145, 96.

Mace, G., Kirkpatrick, J. D., Cushing, M., .. Sheppard, S., .. et al. “A Study of the Diverse T Dwarf Population Revealed by WISE” 2013, ApJS, 205, 6.

Sheppard, S. “The Color Differences of Kuiper Belt Objects in Resonance with Neptune” 2012, AJ, 144, 169.

Sheppard, S., Ragozzine, D. and Trujillo, C. “2007 TY430: A Cold Classical Kuiper Belt Type Binary in the Plutino Population” 2012, AJ, 143, 58.

Sheppard, S., Udalski, A., Trujillo, C. et al. “A Southern Sky and Galactic Plane Survey for Bright Kuiper Belt Objects” 2011, AJ, 142, 98.

- Trujillo, C., Sheppard, S. and Schaller, E. "A Photometric System for Detection of Water and Methane Ices on Kuiper Belt Objects" 2011, *ApJ*, 730, 105
- Brozovic, M., Jacobson, R. and Sheppard, S. "The Orbits of Neptune's Outer Satellites" 2011, *AJ*, 141, 135
- Li, J., Kuchner, M., Allen, R. and Sheppard, S. "Measuring the Sizes, Shapes, Surface Features, Poles and Rotations of Solar System Objects with Interferometry" 2011, *Icarus*, 211, 1007
- Sheppard, S. and Trujillo, C. "The Size Distribution of the Neptune Trojans and the Missing Intermediate Sized Planetesimals" 2010, *ApJ*, 723, L233
- Sheppard, S. and Trujillo, C. "Detection of a Trailing (L5) Neptune Trojan" 2010, *Science*, 329, 1304
- Elliot, J., Person, M., .. Sheppard, S., .. et al. "Size and Albedo of Kuiper Belt Object 55636 from a Stellar Occultation" 2010, *Nature*, 465, 897
- Sheppard, S. "The Colors of Extreme Outer Solar System Objects" 2010, *Astron. J.*, 139, 1394
- Sheppard, S. and Trujillo, C. "A Survey for Satellites of Venus" 2009, *Icarus*, 202, 12
- Brucker, M., Grundy, W., Stansberry, J., Spencer, J., Sheppard, S., Chiang, E. and Buie, M. "High Albedos of Low Inclination Classical Kuiper Belt Objects" 2009, *Icarus*, 201, 284
- Sheppard, S. and Cushing, M. "An Infrared High Proper Motion Survey Using the 2MASS and SDSS: Discovery of M, L, and T Dwarfs" 2009, *Astron. J.*, 137, 304
- Sheppard, S., Lacerda, P. and Ortiz, J. "Photometric Light Curves of Trans-Neptunian Objects and Centaurs: Rotations, Shapes and Densities" 2008, chapter in the Univ. of Arizona Space Science Series book "The Solar System Beyond Neptune", ed. A. Barucci, H. Boehnhardt, D. Cruikshank and A. Morbidelli (Tucson: Univ. of Arizona Press)
- Nicholson, P., Cuk, M., Sheppard, S., Nesvorny, D. and Johnson, T. "Irregular Satellites of the Giant Planets" 2008, chapter in "The Solar System Beyond Neptune", ed. A. Barucci, H. Boehnhardt, D. Cruikshank and A. Morbidelli, (Tucson: Univ. of Arizona Press)
- Sheppard, S. "Dwarf Plutonian Planets and other Large Kuiper Belt Objects: Their Rotations, Phase Functions and Absolute Magnitudes" 2007, *Astron. J.*, 134, 787
- Berger, E., Fox, D., Price, P. .. Sheppard, S., .. et al. "A New Population of High Redshift Short-Duration Gamma-Ray Bursts" 2007, *AstroPhys. J.*, 664, 1000
- Sheppard, S. and Trujillo, C. "A Thick Cloud of Neptune Trojans and Their Colors" 2006, *Science*, 313, 511

- Sheppard, S., Jewitt, D. and Kleyna, J. "A Survey for "Normal" Irregular Satellites Around Neptune: Limits to Completeness" 2006, *Astron. J.*, 132, 171
- Sheppard, S. "A planet more, a planet less" 2006, *Nature*, 439, 541
- Sheppard, S. "Outer Irregular Satellites of the Planets and Their Relationship with Asteroids, Comets and Kuiper Belt Objects" 2006, invited review in "Asteroids, Comets and Meteors: IAU Symposium 229" ed. D. Lazzaro, S. Ferraz-Mello and J. Fernandez, (Cambridge: Cambridge University Press), 319-334
- Fernandez, Y., Jewitt, D. and Sheppard, S. "Albedos of Asteroids in Comet-Like Orbits" 2005, *Astron. J.*, 130, 308
- Sheppard, S., Jewitt, D. and Kleyna, J. "Ultra Deep Survey for Irregular Satellites of Uranus: Limits to Completeness" 2005, *Astron. J.*, 129, 518
- Abell, P., Fernandez, Y., Pravec, P., ..Sheppard, S., .. et al. "Physical Characteristics of Comet Nucleus C/2001 OG108 (LONEOS)" 2005, *Icarus*, 179, 174
- Jewitt, D. and Sheppard, S. "Irregular Satellites in the Context of Planet Formation" 2005, *Space Sci. Reviews*, 116, 441
- Sheppard, S. and Jewitt, D. "Extreme Kuiper Belt Object 2001 QG298 and the Fraction of Contact Binaries" 2004, *Astron. J.*, 127, 3023
- Jewitt, D. and Sheppard, S. "The Nucleus of Periodic Comet 48P/Johnson" 2004, *Astron. J.*, 127, 1784
- Sheppard, S., Jewitt, D. and Kleyna, J. "A Survey for Outer Satellites of Mars: Limits to Completeness" 2004, *Astron. J.*, 128, 2542
- Jewitt, D., Sheppard, S. and Porco, C. "Jupiter's Outer Satellites and Trojans" 2004, in "Jupiter: The Planet, Satellites and Magnetosphere" ed. F. Bagenal, T. Dowling and W. McKinnon, (Cambridge: Cambridge University Press), Chap. 12, 263-280
- Sheppard, S. and Jewitt, D. "An Abundant Population of Small Irregular Satellites Around Jupiter" 2003, *Nature*, 423, 261
- Fernandez, Y., Sheppard, S. and Jewitt, D. "The Albedo Distribution of Jovian Trojan Asteroids" 2003, *Astron. J.*, 126, 1563
- Sheppard, S. and Jewitt, D. "Hawaii Kuiper Belt Variability Project: An Update" 2003, *Earth, Moon and Planets*, 92, 207
- McBride N., Green, S., Davies, J., Tholen, D., Sheppard, S. et al. "Visible and Infrared Photometry of Kuiper Belt Objects: Searching for Evidence of Trends" 2003, *Icarus*, 161, 501

Jewitt, D., Sheppard, S. and Fernandez, Y. "143P/Kowal-Mrkos and the Shapes of Cometary Nuclei" 2003, *Astron. J.*, 125, 3366

Fernandez, Y., Jewitt, D. and Sheppard, S. "Thermal Properties of Centaurs Asbolus and Chiron" 2002, *Astron. J.*, 123, 1050

Sheppard, S. and Jewitt, D. "Time-Resolved Photometry of Kuiper Belt Objects: Rotations, Shapes and Phase Functions" 2002, *Astron. J.*, 124, 1757

Jewitt, D. and Sheppard, S. "Physical Properties of the Trans-Neptunian Object (20000) Varuna" 2002, *Astron. J.*, 123, 2110

Fernandez, Y., Jewitt, D., and Sheppard, S. "Low Albedos Among Extinct Comet Candidates" 2001, *AstroPhys J.*, 553, 197L

Brandner, W., Sheppard, S., Zinnecker, H. et al. "VLT-Detection of Two Edge-On Circumstellar Disks in the rho Oph Dark Cloud" 2000, *Astron. Astrophys.*, 364, L13

Sheppard, S., Jewitt, D., Trujillo, C., Brown, M., and Ashley, M. "A Wide-Field CCD Survey for Centaurs and Kuiper Belt Objects" 2000, *Astron. J.*, 120, 2687

Other Selected Publications for Scott Sheppard

- Sheppard, S. "The Oort Cloud Population", 2018, *Astronomy Magazine*, (May), 46, 45.
- Sheppard, S. "The Hunt For Planet X", 2017, *Sky & Telescope Magazine*, (October), 134, 16-21.
- Sheppard, S. "New Objects Discovered Beyond the Outer Edge of the Kuiper Belt", 2016, *NOAO Newsletter*, (September), 114, 6-7.
- Sheppard, S. "Trojan Asteroids: Dancing with Planets", 2016, *Sky & Telescope Magazine*, (June), 131, 16-21.
- Najita, J., Willman, B., Finkbeiner, D.,... Sheppard, S., ..et al. "Maximizing Science in the Era of LSST: A Community-Based Study of Needed US Capabilities" 2016, NSF report, arXiv1610.01661
- Sheppard, S. "The Inner Oort Cloud: Beyond the Kuiper Belt", 2015, *Sky & Telescope Magazine*, (March), 129, 26-30.
- Sheppard, S. and Trujillo, C. "Discovery of Comet C/2014 F3 (Sheppard-Trujillo)", 2014, *CBET* 3879
- Sheppard, S. "Gathering Moons", 2012, *Astronomy Magazine*, (November), 40, 56
- Sheppard, S. "Two New Satellites of Jupiter: S/2011 J1 and S/2011 J2", 2012, *IAU Circ.* 9252
- Moskovitz, N., Yang, B., .. Sheppard, S., .. et al. "The Near-Earth Encounter of Asteroid 2005 YU55: Visible and Near-Infrared Spectroscopy" 2012, *LPI* 43, 2080.
- Sheppard, S. "The Kuiper Belt" 2011, *McGraw-Hill Encyclopedia of Science and Technology*
- Sheppard, S. "Finding the Small Moons of the Outer Planets: A Satellite Revolution" 2009, *Astronomical Society of the Pacific, Astronomy Beat*, (April), 21, 1
- Sheppard, S. "Natural Satellites" 2009, *World Book*
- Sheppard, S. "Pluto and the Kuiper Belt" 2007, essay in "The Universe" by R. Freedman and W. Kaufmann III (New York: W. H. Freeman and Company), pp 401-402
- Jewitt, D., Sheppard, S. and Kleyna, J. "The Strangest Satellites in the Solar System" 2006, *Scientific American Magazine*, August, 295, 23
- Sheppard, S. et al. "Nine New Satellites of Saturn", 2006, *IAU Circ.* 8727 (June)
- Sheppard, S. "What is a Planet?" 2006, *Sky & Telescope Magazine*, (January), 111, 14
- Sheppard, S. "Small Bodies in the Outer Solar System" 2006, invited review for *New Horizons in Astronomy*, *ASP Conference Series*, 352, 3
- Sheppard, S. "Decision Time for Space Exploration: Where in the Heavens Do We Go Next" 2005, *San Francisco Chronicle*, October 10

- Sheppard, S. "Small Satellites of the Giant Planets" 2005, IAU Comm 16 Triennial Report
- Sheppard, S. "Discovery of Coma around Asteroidal Object 2004 YJ35" 2005, IAU Circ. 8637 (December)
- Sheppard, S. et al. "Twelve New Satellites of Saturn" 2005, MPEC 2005-J13 (May)
- Sheppard, S., Fernandez, Y. and Jewitt, D. "Discovery of Coma around Asteroidal Object 2004 DO29 (P/Spacewatch-Linear)" 2004, IAU Circ. 8305 (March 16)
- Sheppard, S., Fernandez, Y. and Jewitt, D. "Discovery of Coma around Asteroidal Object 2004 DZ61 (P/Catalina-Linear)" 2004, IAU Circ. 8321 (April 14)
- Sheppard, S. and Jewitt, D. "The Abundant Irregular Satellites of the Giant Planets" 2003, in "Highlights of Astronomy" Vol. 13, International Astronomical Union, Ed. Engvold,
- Fernandez, Y., Jewitt, D., and Sheppard, S. "Fragmentation of Comet 57P/du Toit-Neujmin-Delporte" 2002, IAU Circ. 7935 (July 20)
- Sheppard, S. "Outer Jovian Satellites" 2002, IAU Comm 16 Triennial Report
- Sheppard, S. "Jupiter Satellites: 39 and Counting" 2002, Mercury Magazine, 31, 10
- Sheppard, S. "Synchronous Rotations of Moons" 2002, Astronomy Magazine, (March), 30, 73
- Sheppard, S. and Jewitt, D. "Discovery of Components to comet C/2002 Q3 (Linear)" 2002, IAU Circ. (Sept. 6)
- Sheppard, S. and Jewitt D. "The Shapes, Densities and Phase Functions of Trans-Neptunian Objects" 2002, in "Asteroids, Comets and Meteors" Ed. B. Warmbein, ESA Series
- Brandner, W., Potter, D., Sheppard, S. et al. "The Evolution of Circumstellar Disks: Lessons From the VLT and ISO" 2001, in "The Origin of Stars and Planets: The VLT View" (ESO Publication), Eds. J. Alves and M. McCaughrean, Springer Verlag, Heidelberg.

Professional Service

- Scientific Organizing Committee for The University of Arizona Space Science Series: The Solar System Beyond Neptune book.
- Scientific Organizing Committee for the 2012 Division of Planetary Sciences Meeting.
- Member participant for the New Horizons spacecraft mission to the Kuiper Belt.
- Member of the Large Synoptic Survey Telescope (LSST) solar system science collaboration.
- Referee for Nature; Astronomical Journal; Astrophysical Journal; Astronomy and Astrophysics; Icarus; Earth, Moon and Planets; Monthly Notices of the Royal Astronomical Society.
- Panel Member for NASA Planetary Science Proposals.
- Panel Member for NASA Origins of the Solar System Program.
- Panel Member for NASA Solar System Exploration Research Virtual Institute (SSERVI).
- Panel Member for NASA Discovery Program.
- Panel Member for NSF Small Bodies and Solar System Origins Program.
- Panel Member for NSF Astronomy Post Doctoral Fellowships.
- Panel Member NOAO telescope time allocation committee (2015-2018).
- Panel Member Hubble Space Telescope time allocation committee (2010, 2014 and 2017).
- Panel on Maximizing NOAO in the Era of LSST endorsed by Kavli Foundation and NSF.
- Numerous Invited Public and Scientific Talks given around the World.
- Written Several Scientific Articles in Newspapers and Magazines for the General Audience.
- Contributor to the History Channel Program on Near Earth Asteroids.
- Creator of a Webpage on the Moons in our Solar System,
<http://home.dtm.ciw.edu/users/sheppard/satellites>.