

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

Current Research Efforts and Relevant Experience

Dr. Kramer has over 9 years of experience in data analysis of infrared imaging of cometary dust, including *Spitzer* observations of C/1995 O1 (Hale-Bopp) that determined that activity was still present out to 27 AU. She has been a member of NEOWISE science team since 2012, helping to coordinate follow-up optical wavelength observations of comets detected by NEOWISE, and co-authoring several NEOWISE-observed comet papers. As part of this effort, she has PI'd and carried out a successful observing campaigns at JPL's Table Mountain Facility, NOAO's Kitt Peak and SOAR observatories, and the Palomar 5-m telescope.

Dr. Kramer has recently joined the Near Earth Object (NEO) detection team for the ZTF (Zwicky Transient Facility), a ground based optical wavelength survey based at Palomar Observatory. She also joined the NEOCam mission science team in 2018.

Dr. Kramer's current research focuses on characterizing cometary dust in NEOWISE thermal infrared images using dynamical models. She has developed a novel technique to analytically select the best-fit model for individual comets, allowing for a quantitative approach to be used.

Education

- Ph.D., Physics with a concentration in Planetary Sciences, University of Central Florida, 2014
 - Title: "*Studying Short-Period Comets and Long-Period Comets Detected by WISE/NEOWISE*", Advisor: Yanga Fernández
- B.S., Earth, Atmospheric, and Planetary Sciences, Mass. Institute of Technology, 2008

Research Experience

- | | |
|--------------------------------|--|
| 2018—present | Member of NEOCam mission science team |
| 2018—present
detection team | Member of ZTF (Zwicky Transient Facility) Near Earth Object (NEO) |
| 2012—present | Member of the NEOWISE team, Jet Propulsion Laboratory (JPL) <ul style="list-style-type: none">• Topic: Analysis of cometary dust tails in the WISE/NEOWISE data set• Task include developing dynamical models in Python and searching for new objects in the WISE/NEOWISE database |
| 2008—2014 | Research at the University of Central Florida (UCF) <ul style="list-style-type: none">• Advisor: Yanga Fernández• Topic: Analysis of infrared cometary data, with a focus on distant, dusty comets• Tasks included IR data analysis using Python and modeling of dust production |
| 2007 | Research Experience for Undergraduates (REU) at Cornell University <ul style="list-style-type: none">• Advisor: Jean-Luc Margot• Topic: Rotational light curves of binary asteroids• Tasks included optical data analysis, photometry using IRAF, writing scripts in perl |

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

- 2005-2006 Undergraduate Research Opportunities Program (UROP) at MIT
- Advisor: James Elliot
 - Topic: Occultation predictions of Pluto and Charon
 - Tasks included optical data analysis pipeline development using Mathematica

Employment and Fellowships

- 2017—present Scientist, Jet Propulsion Laboratory (JPL)
2014—2017 NASA Postdoctoral Program Fellow, JPL
“Characterizing the Differences between Long-Period and Short-Period Comets with WISE”
- 2013—2014 UCF Graduate Research Excellence Fellowship, UCF
2012—2014 NASA Earth and Space Sciences Fellowship, UCF
“Active and Inactive Comets in the WISE Archive”
- 2012 JPL Graduate Fellowship, JPL
Topic: Dynamical modeling of cometary dust tails in NEOWISE

Peer-Reviewed Publications

- **Kramer, E.A.**, et al., “A Survey of Cometary Dust Tails in the WISE Data”, in prep.
- Rosser, J.D. and 12 others including **E. Kramer**, Behavioral Characteristics and CO+CO₂ Production Rates of Halley-type Comets Observed by NEOWISE, *Astronomical Journal*, **155**:4, article id. 164 (2018).
- Masiero, J.M., et al., including **E. Kramer**, NEOWISE Reactivation Mission Year Three: Asteroid Diameters and Albedos, *Astronomical Journal* **154**:4, article id. 168 (2017).
- Snodgrass, C., and ~100 others including **E. Kramer**, The 67P/Churyumov-Gerasimenko observation campaign in support of the Rosetta mission, *Philosophical Transactions of the Royal Society A*, Volume 375, Issue 2097, id.20160249
- Bauer, J.M., and 15 others including **E. Kramer**, Debiasing the NEOWISE Cryogenic Mission Comet Populations, *Astronomical Journal*, **154**:2, article id. 53, 9 pp. (2017).
- Meech, K.J., and 15 others including **E. Kramer**, Beginning of Activity in Long-Period Comet C/2015 ER61 (PANSTARRS), *Astronomical Journal* **153**:5, article id. 206, 2017
- **Kramer, E.A.**, et al., The Perihelion Emission of Comet C/2010 L5 (WISE), *Astrophysical Journal*, **838**:1, 2017.
- Nugent, C.R., and 7 others including **E. Kramer**, Observed Asteroid Surface Area in the Thermal Infrared, *Astronomical Journal*, **153**:2, article id. 90, 2017.
- Nugent, C.R., and 8 others including **E. Kramer**, NEOWISE Reactivation Mission Year Two: Asteroid Diameters and Albedos, *Astronomical Journal*, **152**:3, article id. 63, 2016.
- Bauer, J.M., R. Stevenson, **E. Kramer**, et al., The NEOWISE-Discovered Comet

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

Population and the CO+CO₂ production rates, *Astrophysical Journal*, **814**:2, article id. 85, 2015.

- Nugent, C.R, and 9 others including **E. Kramer**, NEOWISE Reactivation Mission Year One: Preliminary Asteroid Diameters and Albedos, *Astrophysical Journal*, **814**:2, article id. 117, 2015.
- Grav, T. and 7 others including **E. Kramer**, NEOWISE: Observations of the Irregular Satellites of Jupiter and Saturn, *Astrophysical Journal*, **809**:3 (9pp), 2015.
- **Kramer, E.A., et al.**, A Dynamical Analysis of the Dust Tail of Comet C/1995 O1 (Hale-Bopp) at High Heliocentric Distances, *Icarus*, **236**:136–145, 2014.
- Stevenson, R., Bauer, J.M, **Kramer, E.A. et al.**, Lingering Grains of Truth Around Comet 17P/Holmes, *Astrophysical Journal*, 787:116, 2014.
- Bauer, J.M. and 22 others including **E.A. Kramer**, Centaurs and Scattered Disk Objects in the Thermal Infrared: Analysis of WISE/NEOWISE Observations, *Astrophysical Journal*, **773**:1, article id. 22, 2013.
- Stevenson, R., **Kramer, E.A.**, Bauer, J.M. *et al.*, Activity in Main Belt Comet P/2012 F5, *Astrophysical Journal*, **759**:2, article id. 142, 2012.
- Bauer, J.M., **Kramer, E.A.**, Mainzer, A.K. *et al.*, WISE/NEOWISE Preliminary Analysis and Highlights of the 67P/Churyumov-Gerasimenko Near Nucleus Environs, *Astrophysical Journal*, **758**:1, article id. 18, 2012.
- Bauer, J.M. and 24 others including **E.A. Kramer**, WISE/NEOWISE observations of Active Bodies in the Main Belt, *Astrophysical Journal*, **747**:1, article id. 49, 2012.
- Elliot, J. L. and 19 others including **E.A. Kramer**, Changes in Pluto's Atmosphere: 1988-2006, *Astronomical Journal*, **134**, 1-13, 2007.
- Gulbis, A. A. S, and 12 others including **E.A. Kramer**, Charon's radius and atmospheric constraints observations of a stellar occultation, *Nature*, **439**, 48-51, 2006.

Conference Abstracts

American Astronomical Society Conference Abstracts

- 2010: (409.02) An Investigation of Comet Hale-Bopp at 21.6 and 27.2 AU from the Sun. **E.A. Kramer**, Y.R. Fernandez, M.S. Kelley, L.M. Woodney, C.M. Lisse.

American Geophysical Union Conference Abstracts

- 2012: (P43C-1937) Examining the Range of Cometary Dust Characteristics with the Wide-Field Infrared Survey Explorer. R. Stevenson, J.M. Bauer, **E. Kramer**, and 10 others.

Asteroids, Comets and Meteors Conference Abstracts

- 2017, Montevideo, Uruguay

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

- Poster1.e.36, A COMETARY UPDATE FROM THE FIRST THREE YEARS OF THE NEOWISE MISSION. **E.A. Kramer**, J.M. Bauer, Y.R. Fernandez, A.K. Mainzer, T. Grav, J.R. Masiero, C. Nugent, S.M. Sonnett, R.M. Cutri, and the NEOWISE Team.
- Plenary5.a.3, NEOWISE AND NEOCAM – PRESENT AND FUTURE NEO SURVEYS. A. Mainzer, J. Bauer, R. Cutri, T. Grav, **E. Kramer**, J. Masiero, C. Nugent, S. Sonnett, E. Wright, the NEOCam Team.
- Parallel4.b.5, NEOWISE COMET SIZES AND DEBIASED POPULATIONS. J. M. Bauer, T. Grav, Y. Fernandez, A. Mainzer, **E. Kramer**, J. Masiero, T. Spahr, C. Nugent, R. Stevenson, K. Meech, C. Lisse, J. Dailey, R. Walker, J. Rosser, P. Krings, K. Rueker, N. Wright, and the NEOWISE Team.
- Poster1.e.41, NEOWISE OBSERVATIONAL CONSTRAINTS ON MODELS OF CO AND CO₂ DISSOCIATION SCALE LENGTHS IN COMETS. A.J. Lovell, **E.A. Kramer**, Y.R. Fernandez, and J.M. Bauer.
- Poster2.d.26 SHAPES AND ROTATIONAL PROPERTIES OF THE SELECTED HILDA AND TROJAN ASTEROIDS. M. Gritsevich, S. Sonnett, J. Torppa, A. Mainzer, K. Muinonen, T. Grav, J. Masiero, J. Bauer, and **E. Kramer**.

- 2014, Helsinki, Finland
 - (Session 5-2-1) Searching for evidence for different activity drivers in long- and short-period comets from the WISE/NEOWISE data set. **E. Kramer**, Y. Fernandez, J. Bauer, R. Stevenson, A. Mainzer, T. Grav, J. Masiero, R. Walker, C. Lisse, and the WISE Team.
 - (Session 3-1-3) Studying comets with NEOWISE. R. Stevenson, J. Bauer, **E. Kramer**, Y. Fernandez, A. Mainzer, T. Grav, and J. Masiero.
- 2012, Niigata, Japan
 - (LPI Contribution No. 1667) A Dynamical Analysis of Cometary Dust Tails Observed by WISE/NEOWISE. **E.A. Kramer**, Y.R. Fernandez, J.M. Bauer, A.K. Mainzer, T. Grav, J. Masiero, R.G. Walker, R. Stevenson, C.M. Lisse, and the WISE Team.
 - (LPI Contribution No. 1667) WISE/NEOWISE Comets: Preliminary Physical Properties of Nuclei and Gas Emissions. J.M. Bauer, A.K. Mainzer, T. Grav, J.R. Masiero, **E. Kramer**, Y.R. Fernandez, R. Walker, K.J. Meech, C.M. Lisse, P.R. Weissman, R. Stevenson, J. Dailey, R. Cutri, and the WISE Team.

Division for Planetary Sciences Conference Abstracts

- 2017, Provo, Utah
 - (117.10) NEOWISE Reactivation Mission Year Three: Asteroid Diameters and Albedos. J.R. Masiero, C. Nugent, A.K. Mainzer, E.L. Wright, J.M. Bauer, R.M. Cutri, T. Grav, **E.A. Kramer**, S.M. Sonnett

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

- (302.03) Candidate Binary Trojan and Hilda Asteroids from Rotational Light Curves. S.M. Sonnett, A.K. Mainzer, T. Grav, J.R. Masiero, J.M. Bauer, **E.A. Kramer**
- (414.16) NEOWISE Reactivation Mission Cometary CO+CO₂: Preliminary Results from Years 1 through 3. J.M. Bauer, T. Grav, A.K. Mainzer, **E.A. Kramer**, J.R. Masiero, M.S. Kelley, C.R. Nugent, S.M. Sonnett, Y.R. Fernandez, C.M. Lisse, K.J. Meech, J.D. Rosser, R.G. Walker, E.L. Wright
- (420.03) Behavioral Characteristics and CO+CO₂ Production Rates of Halley-Type Comets Observed by NEOWISE. J.D. Rosser, J.M. Bauer, A.K. Mainzer, **E.A. Kramer**, J.R. Masiero, C. Nugent, S.M. Sonnett, Y.R. Fernandez, E.L. Wright
- 2016, Pasadena, CA
 - (208.02) Observations of Candidate Binary Asteroids in the Jovian Trojan and Hilda Populations. S.M. Sonnett, A.K. Mainzer, T. Grav, J.M. Masiero, J.M. Bauer, **E.A. Kramer**.
 - (211.01) High Resolution Optical Spectroscopy of Rosetta Target 67P/Churyumov-Gerasimenko Using Keck HIRES. A. McKay, A.L. Cochran, D. Bodewits, M.F. A'Hearn, K. Altwegg, S. Gulikis, C. Snodgrass, M. de Val Borro, M.S. Kelley, L.M. Feaga, D.H. Wooden, J.M. Bauer, **E.A. Kramer**.
 - (217.09) Modeling CO₂ and CO dissociation scale lengths in NEOWISE comets. A.J. Lovell, **E.A. Kramer**, Y.R. Fernandez, J.M. Bauer.
 - (300.06) A Summary of Comet Nuclei Diameters and Dust Photometry from the WISE/NEOWISE Prime Mission. J.M. Bauer, T. Grav, A.K. Mainzer, Y.R. Fernandez, **E.A. Kramer**, J.R. Masiero, T. Spahr, C. Nugent, S.M. Sonnett, K.J. Meech, C.M. Lisse, R.M. Cutri, R.G. Walker, J. Rosser, P. Krings, E.L. Wright.
 - (308.03) A Cometary Update from the First Two Years of the NEOWISE Mission. **E.A. Kramer**, J.M. Bauer, Y.R. Fernandez, A.K. Mainzer, T. Grav, J.R. Masiero, C. Nugent, S.M. Sonnett, R.M. Cutri, R. Stevenson.
 - (308.06) Watching a Long Period Comet Turn On – C/2015 ER61 (PANSTARRS). K.J. Meech, K. Sorli, J. Kleyna, J. Keane, J.M. Bauer, M. Micheli, C.A. Schambeau, G. Sarid, O. Hainaut, B. Yang, R.J. Wainscoat, B. Boe, **E.A. Kramer**, B. Bhatt, D. Sahu.
 - (327.02) NEOWISE diameters and albedos: now available on PDS! J.M. Masiero, A.K. Mainzer, J.M. Bauer, R.M. Cutri, T. Grav, **E.A. Kramer**, C. Nugent, S.M. Sonnett, R. Stevenson, E.L. Wright.
 - (516.03) Observed asteroid surface in the infrared: more than meets the eye. C. Nugent, J.R. Masiero, E.L. Wright, J.M. Bauer, T. Grav, **E.A. Kramer**, S.M. Sonnett.
- 2015, National Harbor, MD
 - (506.09) A Preliminary Analysis of Cometary Dust in the 1st Year of the NEOWISE Restarted Mission. **E.A. Kramer**, J.M. Bauer, Y.R. Fernandez, A.K. Mainzer, T. Grav, J. Masiero, C.R. Nugent, S. Sonnett, R. Cutri, R. Stevenson.

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

- (301.01) NEOWISE Reactivation Mission Year One: Preliminary Asteroid Diameters and Albedos. C.R. Nugent, A.K. Mainzer, J. Masiero, J.M. Bauer, R. Cutri, T. Grav, **E.A. Kramer**, S. Sonnett, R. Stevenson, E. Wright.
- (301.05) Constraining the shape distribution and binary fractions of asteroids observed by NEOWISE. S. Sonnett, A.K. Mainzer, T. Grav, J. Masiero, J. Bauer, P. Vernazza, J.G. Ries, **E.A. Kramer**.
- (308.11) Albedo, Size and Taxonomy of the Small Body Populations Outside the Main Belt. T. Grav, A.K. Mainzer, J. Bauer, J. Masiero, R. Cutri, C.R. Nugent, S. Sonnett, **E.A. Kramer**.
- (415.01) Sizing Up the Comets: The NEOWISE Mission Survey of Cometary Nuclei. J. Bauer, T. Grav, A.K. Mainzer, **E.A. Kramer**, R. Stevenson, and 15 others.
- 2014, Tucson, AZ
 - (200.09) Studying Short-Period Comets and Long-Period Comets Detected by WISE/NEOWISE. **E.A. Kramer**, Y.R. Fernandez, J.M. Bauer, R. Stevenson, A.K. Mainzer, T. Grav, J. Masiero, R.G. Walker, C.M. Lisse.
 - (103.07) Comparative CO/CO₂ Production in NEOWISE-Observed Comets. J.M. Bauer, R. Stevenson, **E. Kramer**, and 14 others.
- 2013, Denver, CO
 - (413.12) WISE/NEOWISE Observations of WISE/NEOWISE-discovered Cometary Dust Tails. **E.A. Kramer**, Y.R. Fernandez, J.M. Bauer, R.A. Stevenson, A.K. Mainzer, T. Grav, J. Masiero, R.G. Walker, C.M. Lisse, and the WISE Team.
 - (508.06) Centaurs and Scattered Disk Objects in the Thermal Infrared: Analysis of WISE/NEOWISE Observations. J.M. Bauer, and 24 others, including **E. Kramer**.
 - (413.11) A cometary update from the WISE mission. R. Stevenson, J.M. Bauer, **E.A. Kramer**, A.K. Mainzer, J.R. Masiero, T. Grav, Y.R. Fernandez, and the WISE Team.
- 2012, Reno, NV
 - (514.07) Characterization of Cometary Dust Tails in the WISE/NEOWISE Data Set. **E.A. Kramer**, Y.R. Fernandez, J.M. Bauer, A.K. Mainzer, T. Grav, J. Masiero, R.G. Walker, R. Stevenson, C.M. Lisse, and the WISE Team.
 - (514.06) Multi-Wavelength Analysis of Cometary Dust Comae Using WISE/NEOWISE Results. Rachel Stevenson, J.M. Bauer, **E.A. Kramer**, A.K. Mainzer, J.R. Masiero, T. Grav, Y.R. Fernandez, C.M. Lisse, K.J. Meech, P.R. Weissman, D.J. Tholen, R.G. Walker, E.L. Wright and the WISE Team.
 - (314.21) WISE Observations of Rendezvous Mission Candidate Comets. Carey M. Lisse, J.M. Bauer, Y.R. Fernandez, A.K. Mainzer, R.G. Walker, K.J. Meech, T. Grav, P.R. Weissman, **E. Kramer**, R. Stevenson.
 - (514.08) WISE/NEOWISE Comets: Nuclei and CO/CO₂ Emission. James M. Bauer, R. Stevenson, **E.A. Kramer**, A.K. Mainzer, T. Grav, J.R. Masiero, Y.R. Fernandez, C.M. Lisse, K.J. Meech, P.R. Weissman, R. Cutri, J.W. Dailey, D.J. Tholen, R.G.

Dr. Emily Kramer

Scientist

Jet Propulsion Laboratory

4800 Oak Grove Drive, MS 183-501

Pasadena, CA 91109

Work phone: (818) 354-0232

Cell phone: (617) 710-3375

emily.kramer@jpl.nasa.gov

Walker, A. Lucas, T.N. Gautier IV, E.L. Wright and the WISE Team.

- 2011: (EPSC-DPS2011-530) Studying Jupiter-Family Comets and Long Period Comets Detected by WISE/NEOWISE. **E.A. Kramer**, Y. Fernandez, J.M. Bauer, A. Mainzer, R.G. Walker, T. Grav, J. Masiero, C. Lisse, K.J. Meech, R.M. Cutri, R.S. McMillan, D.J. Tholen, E. Wright, and the WISE Team.
- 2010: (28.30) Modeling the Dynamics of Comet Hale-Bopp's Dust at Large Heliocentric Distances. **E.A. Kramer**, Y.R. Fernandez, M.S. Kelley, L. Woodney, C.M. Lisse
- 2009: (15.01) A Cold, Dusty Comet: A Study of Hale-Bopp 8 and 11 Years After Perihelion. **E.A. Kramer**, Y.R. Fernandez, M.S. Kelley, L. Woodney
- 2007: (35.09) Observations of Mutual Events in Binary Asteroid 22 Kalliope/Linus. **E.A. Kramer**, J. L. Margot, B. D. Warner, M. D. Hicks, J. W. Young, J. M. Bauer, P. Wiggins
- 2006
 - (25.02) A Search for Rings, Moons, or Debris in the Pluto System during the 2006 July 12 Occultation. Jay M. Pasachoff and 18 others including **E.A. Kramer**
 - (31.01) Pluto's Atmospheric Structure: Results From The 2006 June 12 Stellar Occultation. Amanda A. Gulbis and 18 others including **E.A. Kramer**
 - (31.02) The Size of Pluto's Atmosphere As Revealed by the 2006 June 12 Occultation. James L. Elliot and 18 others including **E.A. Kramer**
- 2005: (49.04) Resolved, Time-Series Observations of Pluto-Charon with the Magellan Telescopes. J. L. Elliot, M. J. Person, E. R. Adams, A. A. S. Gulbis, **E. A. Kramer**

European Planetary Sciences Congress Conference Abstracts

- 2012: (EPSC2012-799) Characterization of Main Belt Comet P/2012 F5 (Gibbs). R. Stevenson, **E.A. Kramer**, J.M. Bauer, J.R. Masiero, A.K. Mainzer.

International Astronomical Union (IAU) Meeting Abstracts

- 2015, Honolulu, HI
 - (FM9.5.07) Dust in the Solar Wind. **E.A. Kramer**, J. Bauer, A. Mainzer, T. Grav, C. Nugent, S. Sonnett, R. Stevenson
 - (FM9p.07) NEOWISE: The Physical and Dynamical Properties of the Cybele, Hilda and Jovian Trojan Populations. T. Grav, A. Mainzer, J. Bauer, J. Masiero, C. Nugent, S. Sonnett, R. Cutri, **E. Kramer**
 - (FM9.3.02) Characterization of the Near-Earth Object Population by NEOWISE. A. Mainzer, T. Grav, J. Bauer, J. Masiero, R. Cutri, E. Wright, C. Nugent, **E. Kramer**, S. Sonnett
 - (FM9.3.04) Gas, Dust, and Nuclei: Cometary Types in the Largest IR Survey of Comets. J. Bauer, **E. Kramer**, A. Mainzer, T. Grav, J. Masiero, R. Stevenson, C. Nugent, S. Sonnett

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

Lunar and Planetary Sciences Conference Abstracts

- 2015: (LPI Contribution No. 1832, p.2820) Cometary Dust Tails in NEOWISE. **E.A. Kramer**, J.M. Bauer, Y.R. Fernandez, and 8 others.
- 2014: (LPI Contribution No. 1777, p.2687) A Study of 21 Comets Discovered by WISE/NEOWISE. R. Stevenson, J.M. Bauer, **E.A. Kramer** and 9 others.

Other Conferences (as primary author)

- WISE at 5: Legacies and Prospects
 - February 10-12, 2015; held at Caltech, Pasadena, CA
 - *Member of the Science Organizing Committee*
 - Talk entitled: Cometary Dust Tails in NEOWISE
- Hotwired-IV: Hotwiring the Transient Universe
 - May 12-15, 2015; held in Santa Barbara, CA
 - Talk entitled: Cometary Dust in NEOWISE
- “From Giotto to Rosetta” 50th ESLAB Symposium
 - March 14-18, 2016; held in Leiden, The Netherlands
 - Poster entitled: An Overview of Cometary Science with WISE/NEOWISE
- Cometary Science After Rosetta: Future Directions
 - June 16-17, 2016; held in London, UK
 - Talk entitled: 67P’s Place in the WISE/NEOWISE Cometary Database
- Planetary Science Vision 2050
 - February 27-March 1, 2017; held at NASA Headquarters, Washington, DC
 - Abstract entitled: CoSTrS: Cometary Survey of Trail Samples
 - Additionally gave talk for James Bauer (#8067) and presented poster for Joseph Masiero (#8020)

Central Bureau Electronic Telegrams (CBET)

- Hergenrother, C.W.; Fernandez, Y.; **Kramer, E.**; Mueller, B.E.A; Comet 168P/Hergenrother. Central Bureau Electronic Telegrams, 3295, 6 (2012)

Minor Planet Electronic Circulars (MPEC)

- Over 100 entries (as of April 2018) reporting the detection and characterization of small bodies by the NEOWISE Mission

Small Bodies Assessment Group (SBAG)

- Joined in 2015
- Part of Science Goals Document Committee, heading comets section of document

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

- Attended 13th meeting in Washington, D.C. in June 2015
 - One of two selected to receive Early Career scholar travel funding
- Attended 14th meeting in Arcadia, CA in January 2016
- Attended 15th meeting in Laurel, MD in June 2016
 - Presented update to the NEOWISE mission to the community via webcast
- Attended 16th meeting in Tucson, AZ in January 2017
 - Presented update to the NEOWISE mission to the community via webcast

Other Community Involvement

- JPL Postdoc Poster Presentation Day
 - August 20, 2016, held at JPL
- Telescope Allocation Committee, Las Cumbres Observatory Global Telescope (LCOGT) Network, Fall 2015
- Telescope Allocation Committee, National Optical Astronomy Observatory (NOAO), Fall 2015, Spring & Fall 2016, Spring & Fall 2017
- Hubble Telescope Allocation Committee, Space Telescope and Science Institute (STScI), Cycle 25 (2017)
- Served on several NASA review panels, 2015, 2016, & 2017
 - Research grants dispersing several million in funding
- Science Organizing Committee for the Division for Planetary Sciences 48th meeting, Pasadena, CA, October 2016
- Talk given at Rosetta Educators Workshop, held at JPL, September 2016
- Talk given at Rosetta End of Mission celebration, held at JPL, September 2016
- Wide-Field Infrared Survey Explorer (WFIRST) Solar System Working Group team member, 2016—present.
- Invited talk given at American Association of University Women (AAUW) meeting, May 2017
- Invited talk given at Clark Magnet High School (La Crescenta, CA) on Ada Lovelace day, October 2017
- JPL Press Release, “NASA’s Asteroid-Hunting Spacecraft a Discovery Machine”, June 5, 2017

Ground Based Observing Experience

(Bolded runs refer to those for which I am the PI)

- **New Horizons mobile observation campaign for 2014 MU69, South Africa**
 - Portable telescope system used to attempt to observe stellar occultation by 2014 MU69 in June 2017 near Clanwilliam, South Africa

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

- SOAR Telescope, Cerro Pachon, Chile
 - 4 nights (on site) in April 2015
 - Used SOI and Goodman Spectrograph in imaging mode
 - Observed Jupiter Trojan asteroids and several comets
- Table Mountain Observatory, Wrightwood, CA
 - 0.6-m, imager
 - Used both on site and remotely to follow up comets detected by NEOWISE
 - **Awarded 4 nights in Q1, 2015**
 - **Awarded 4 nights in Q2, 2015**
 - **Awarded 3 nights in Q3, 2015**
 - **Awarded 2 nights in Q4, 2015**
 - **Awarded 3 nights in Q2, 2016**
- Kitt Peak Observatory
 - September 2015
 - 0.9-m, using Half-Degree Imager (HDI)
 - Observed Jupiter Trojan asteroids and several comets
 - November 2012
 - 2.1-m, using CCD Imager (CFIM)
 - Observed light curve of comet Encke, and several other comets
- Palomar Observatory, Palomar Mountain, CA
 - 1 night each in March 2012, July 2012, and February 2017; 3 nights in September 2017; **1 night in each of March and May 2018**
 - Hale 200-inch, using Large Format Camera (LFC) and Double Spectrograph (DBSP)
 - Observed several comets and Kuiper belt objects; rotational light curve of potentially hazardous asteroid (PHA) 2012 TC4
- Wyoming Infrared Observatory (WIRO), Jelm Mt, Wyoming
 - January 2012
 - 2.3-m, using PrimeFocus Imaging camera
 - Observed light curve of comet Encke, and several other comets
- Robinson Observatory, University of Central Florida, Orlando, FL
 - 2008-2014
 - 20", using SBIG imager
 - Assisted in open house nights for university students and the public, as well as special events for scout troops and schools
- Lowell Observatory
 - Summer 2005: 18" Astrograph; took strip scans to get better astrometry for Pluto occultation candidates
 - January 2007: 42" Hall telescope; observed several comets
- Magellan Telescope, Las Campanas Observatory, Chile

Dr. Emily Kramer
Scientist
Jet Propulsion Laboratory
4800 Oak Grove Drive, MS 183-501
Pasadena, CA 91109
Work phone: (818) 354-0232
Cell phone: (617) 710-3375
emily.kramer@jpl.nasa.gov

- July 2006
- 6.5-m Clay Telescope
- POETS setup to observe binary KBO candidates
- Mt. Stromlo, Canberra, Australia
 - June 2006
 - 1.8-m Satellite Laser Ranging Telescope
 - POETS setup to observe a Pluto occultation