

CRISTINA A. THOMAS

Planetary Science Institute
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Research Interests

Observations, spectral properties, and compositions of near-Earth, Main Belt, and Trojan asteroids; space weathering; connections with meteorites; spacecraft missions to study small bodies

Education

2009 Ph.D., Planetary Science, Massachusetts Institute of Technology
2004 B.S., Planetary Science, California Institute of Technology

Research Experience

2015-present Research Scientist, Planetary Science Institute
2015-2016 Visiting Scientist, Universities Space Research Association
2012-2015 NASA Postdoctoral Program Fellow, NASA Goddard Space Flight Center
2009-2012 Postdoctoral Scholar, Northern Arizona University
2004-2009 Graduate Student, Massachusetts Institute of Technology
2008 Small Spacecraft Summer Study Project, UCSC/NASA Ames Research Center
2002-2003 NASA Reduced Gravity Student Flight Opportunities Program
2001 Caltech Summer Undergraduate Fellow, Jet Propulsion Laboratory

Mission Experience

2016-present AIDA/DART Observing Working Group
2014-present James Webb Space Telescope (JWST) Solar System Science Focus Group Lead for Near-Earth Object (NEO) observations
2013-present Collaborator, OSIRIS-REx Science Team
2012-2015 Co-Investigator, DARE, NASA Goddard Discovery Mission Proposal

Teaching Experience & Public Outreach

2011-2012 Docent & "Meet an Astronomer", Lowell Observatory
2010-2011 Instructor, Astronomy Graduate Seminar, Northern Arizona University
2006-2008 Teaching Assistant, Massachusetts Institute of Technology, *The Solar System, Physics and Chemistry of the Solar System, Physics and Chemistry of the Terrestrial Planets*

Fellowships & Awards

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| 2015 | Kavli Institute Frontiers of Science Fellow |
| 2014 | NASA ROSES Early Career Fellowship, Planetary Astronomy |
| 2012-2015 | NASA Postdoctoral Program Fellowship |
| 2005-2009 | National Science Foundation Graduate Research Fellowship |
| 2008 | Excellence in Teaching, MIT Dept. of Earth, Atmospheric and Planetary Sciences |
| 2004-2005 | Massachusetts Institute of Technology Presidential Fellowship |
| 2001-2004 | Mellon Mays Undergraduate Fellowship |

Funding

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| 2014-2017 | Science PI, NASA ROSES Planetary Astronomy "A Search for a Differentiated Asteroid Family: Battered to Bits or Low-Olivine Differentiation?" |
| 2014-2016 | Co-I, NASA ROSES Near-Earth Object Observations "Mission Accessible Near-Earth Objects Survey (MANOS)", PI: N. Moskovitz, Lowell Observatory |
| 2014 | NASA ROSES Early Career Fellowship |
| 2015-2017 | Science PI, NASA ROSES Solar System Observations "Characterization of the near-Earth asteroid population using MIT-UH-IRTF Joint Campaign Spectra" |
| 2016-2020 | Co-I, NASA ROSES Solar System Observations "A Search for OH/H ₂ O on Near-Earth Objects and nominally anhydrous Main Belt asteroids", PI: J. Emery, University of Tennessee |
| 2016-2018 | PI, NASA ROSES Solar System Workings "A new method for deriving composition from noisy and incomplete near-infrared asteroid spectra" |

Professional Activities

AAS Committee on the Status of Women in Astronomy (CSWA, 2016-present)
 AAS Early Career Advisory Board (2016-present)
 "Maximizing Science in the Era of LSST", Primitive Small Bodies study group (2016)
 National Optical Astronomy Observatory (NOAO) Telescope Allocation Committee (2015-present)
 AAS 47th Meeting of the Division for Planetary Sciences Local Organizing Committee (2015)
 AAS Division for Planetary Sciences Nominating Subcommittee (2011-2014)
 NASA Goddard Association of Postdoctoral Scholars Co-President (2013-2014)
 Goddard Women in Astrophysics Organizing Committee (2013-2015)
 Panelist and external reviewer for various NASA ROSES programs & the Planetary Data System (PDS)
 Reviewer for Icarus; Planetary and Space Sciences; Astrophysical Journal; Astrophysical Journal Letters; Astronomy & Astrophysics Letters; Earth, Planets, and Space; Meteoritics & Planetary Science; NASA Postdoctoral Program

Papers in Refereed Journals

30. Sanchez, J. A., Reddy, V., Shepard, M. K., **Thomas, C.**, Cloutis, E. A., Takir, D., Conrad, A., de Pater, I. "Detection of Rotational Spectral Variation on M-type asteroid (16) Psyche." *Astronomical Journal*, submitted.
29. Hagen, A.R., Trilling, D.E., Penprase, B.E., **Thomas, C.A.**, Jones, S.L., Hickey, D., Fitzgerald, C., Kistler, J.L., Burt, B.J., Hagen, L.M.Z., Wilka, C.A., Mueller, M., Harris, A.W., Mommert, M., Benner, L.A.M., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbo, M., Emery, J.P., Fazio, G., Hora, J.L., Mainzer, A., Morbidelli, A., Smith, H.A., Spahr, T.B. "ExploreNEOs VII: Accurate H-magnitudes for 87 Near Earth Objects and New Albedos & Diameters for 75 Near Earth Objects." *Astronomical Journal*, submitted.
28. Trilling, D.E., Mommert, M., Mueller, M., Spahr, T.B., Hora, J.L., Harris, A.W., **Thomas, C.A.**, Benner, L., Bhattacharya, B., Bottke, W.F., Delbo, M., Emery, J.P., Fazio, G., Mainzer, A., Penprase, B., Smith, H.A. "ExploreNEOs VI: Second data release and preliminary size distribution of near Earth objects." *Astronomical Journal*, submitted.
27. Thirouin, A., Moskovitz, N., Binzel, R., Christensen, E., DeMeo, F., Person, M., Polishook, D., **Thomas, C.**, Trilling, D., Willman, M., Hinkle, M., Burt, B., Avner, D., Aceituno, F. "The Mission Accessible Near-Earth Objects Survey (MANOS): first photometric results." *Astronomical Journal*, accepted.
26. Polishook, D., Moskovitz, N., Binzel, R.P., Burt, B., DeMeo, F.E., Hinkle, M.L., Lockhart, M., Person, M., Thirouin, A., **Thomas, C.A.**, Trilling, D., Willman, M., Aharonson, O. "A 2KM-size Asteroid Challenging the Rubble-Pile Spin Barrier- A Case for Cohesion." *Icarus*, **267**, 243, 2016.
25. Rivkin, A.S., **Thomas, C.A.**, Howell, E.S., Emery, J.P. "The Ch-class asteroids: Connecting a visible taxonomic class to a 3- μ m band shape." *Astronomical Journal*, **150**, 6, 2015.
24. Milam, S.N., Stansberry, J.A., Sonneborn, G., **Thomas, C.A.** "The James Webb Space Telescope's plan for operations and instrument capabilities for observations in the Solar System." *PASP*, **128**, 018001, 2016.
23. Rivkin, A.S., Marchis, F., Stansberry, J., Takir, D., **Thomas, C.A.** "Asteroids and JWST." *PASP*, **128**, 018003, 2016.
22. **Thomas, C.A.**, Abell, P., Castillo-Rogez, J., Moskovitz, N., Mueller, M., Reddy, V., Rivkin, A., Ryan, E., Stansberry, J.A. "Observing Near-Earth Objects with the James Webb Space Telescope." *PASP*, **128**, 018002, 2016.
21. Mommert, M., Harris, A.W., Mueller, M., Hora, J.L., Trilling, D.E., Bottke, W.F., **Thomas, C.A.**, Delbo, M., Emery, J.P., Fazio, G., Smith, H.A., "ExploreNEOs VIII: A Search for Near-Earth Objects of Cometary Origin." *Astronomical Journal*, **150**, 106, 2015.
20. Reddy, V., Gary, B.L., Sanchez, J.A., Takir, D., **Thomas, C.A.**, Ogmen, Y., Benni, P., Kaye, T., Gregorio, J., Garlitz, J., Polishook, D., Hardersen, P.S., Nathues, A., Le Corre, L. "Physical Characterization of Potentially-Hazardous Asteroid 2004 BL86: A Crustal Fragment of a Differentiated Asteroid." *Astrophysical Journal*, **811**, 65, 2015.
19. Mommert, M., Hora, J.L., Harris, A.W., Reach, W.T., Emery, J.P., **Thomas, C.A.**, Mueller, M., Cruikshank, D.P., Trilling, D.E., Delbo, M., Smith, H.A. "The Discovery of Cometary Activity in Near-Earth Asteroid (3552) Don Quixote." *Astrophysical Journal*, **781**, 25, 2014.
18. **Thomas, C.A.**, Emery, J.P., Trilling, D.E., Delbó, M., Hora, J.L., Mueller, M. "Physical Characterization of Warm Spitzer-observed Near-Earth Objects." *Icarus*, **228**, 217, 2014.

17. **Thomas, C.A.**, Trilling, D.E., Rivkin, A.S. "Space Weathering of Small Koronis Family Asteroids in the SDSS Moving Object Catalog." *Icarus*, **219**, 505, 2012.
16. Oszkiewicz, D.A., Bowell, E., Wasserman, L.H., Muinonen, K., Penttilä, A., Pieniluoma, T., Trilling, D.E., **Thomas, C.A.** "Asteroid taxonomic signatures from photometric phase curves." *Icarus*, **219**, 283, 2012.
15. Rivkin, A.S., Clark, B.E., Ockert-Bell, M., Volquardsen, E., Howell, E.S., Schelte, S.J., **Thomas, C.A.**, Shepard, M. "Asteroid 21 Lutetia at $3\mu\text{m}$: Observations with IRTF SpeX." *Icarus*, **216**, 62, 2011.
14. **Thomas, C.A.**, Trilling, D.E., Emery, J.P., Mueller, M., Hora, J.L., Benner, L.A.M., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbó, M., Fazio, G., Harris, A.W., Mainzer, A., Mommert, M., Morbidelli, A., Penprase, B., Smith, H.A., Spahr, T.B., Stansberry, J.A. "ExploreNEOs V: Average albedo by taxonomic complex in the near-Earth asteroid population." *Astronomical Journal*, **142**, 85, 2011.
13. Sánchez-Lavega, A., Orton, G.S., Hueso, R., Pérez-Hoyos, S., Fletcher, L.N., García-Melendo, E., Gomez-Forrellad, J.M., de Pater, I., Wong, M., Hammel, H.B., Yanamandra-Fisher, P.A., Simon-Miller, A., Barrado-Izagirre, N., Marchis, F., Mousis, O., Ortiz, J.L., García, J., Cecconi, M., Clarke, J.T., Noll, K., Pedraz, S., Wesley, A., Kalas, P., McConnell, N., Golisch, W., Griep, D., Sears, P., Volquardsen, E., Reddy, V., Shara, M., Binzel, R., Grundy, W., Emery, J., Rivkin, A., **Thomas, C.**, Trilling, D., Bjorkman, K., Burgasser, A., Campins, H., Sato, T., Kasaba, Y., Ziffer, J., and the IOPW team. "Long-term Evolution of the Aerosol Debris Cloud Produced by the 2009 Impact on Jupiter." *Icarus*, **214**, 462, 2011.
12. Schindler, K., **Thomas, C.A.**, Reddy, V., Weber, A., Fasoulas, S. "PANIC-- A Surface Science Package for the In Situ Characterization of a Near-Earth Asteroid." *Acta Astronautica*, **68**, 1800, 2011.
11. **Thomas, C.A.**, Rivkin, A.S., Trilling, D.E., Enga, M-T., Grier J.A. "Space Weathering of Small Koronis Family Members." *Icarus*, **212**, 158-166, 2011.
10. Mueller, M., Delbo, M., Hora, J.L., Trilling, D.E., Bhattacharya, B., Bottke, W.F., Chesley, S., Emery, J.P., Fazio, G., Harris, A.W., Mainzer, A., Mommert, M., Penprase, B., Smith, H.A., Spahr, T.B., Stansberry, J.A., **Thomas, C.A.** "ExploreNEOs III: Physical Characterization of 65 Potential Spacecraft Target Asteroids." *Astronomical Journal*, **141**, 109, 2011.
9. Harris, A.W., Mommert, M., Hora, J.L., Mueller, M., Trilling, D.E., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbo, M., Emery, J.P., Fazio, G., Mainzer, A., Penprase, B., Smith, H.A., Spahr, T.B., Stansberry, J.A., **Thomas, C.A.** "ExploreNEOs II: The Accuracy of the Warm Spitzer Near-Earth Object Survey." *Astronomical Journal*, **141**, 75, 2011.
8. Rivkin, A.S., **Thomas, C.A.**, Trilling, D.E., Enga, M-T., Grier J.A. "Ordinary Chondrite-like colors in small Koronis Family members." *Icarus*, **211**, 1294-1297, 2011.
7. Trilling, D.E., Mueller, M., Hora, J.L., Harris, A.W., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbo, M., Emery, J.P., Fazio, G., Mainzer, A., Penprase, B., Smith, H.A., Spahr, T.B., Stansberry, J.A., **Thomas, C.A.** "ExploreNEOs I: Description and first results from the Warm Spitzer NEO Survey." *Astronomical Journal*, **140**, 770-784, 2010.
6. **Thomas, C.A.**, Binzel, R.P. "Identifying Meteorite Source Regions Through Near-Earth Object Spectroscopy." *Icarus*, **205**, 419-429, 2010.
5. Binzel, R.P., Morbidelli, A., Merouane, S., DeMeo, F.E., Birlan, M., Vernazza, P., **Thomas, C.A.**, Rivkin, A.S., Bus, S.J., Tokunaga, A.T. "Earth encounters as the origin of fresh surfaces on near-Earth asteroids." *Nature*, **463**, 331-334, 2010.

4. Binzel, R.P., Rivkin, A.S., **Thomas, C.A.**, Vernazza, P., Burbine, T.H., DeMeo, F.E., Bus S.J., Tokunaga, A.T., Birlan, M. "Spectral Properties and Composition of Potentially Hazardous Asteroid (99942) Apophis." *Icarus*, **200**, 480-485, 2009.
3. Vernazza, P., Binzel, R.P., **Thomas, C.A.**, DeMeo, F.E., Bus, S.J., Rivkin, A.S., Tokunaga, A.T. "Compositional differences between meteorites and near-Earth asteroids." *Nature*, **454**, 858-860, 2008.
2. Ockert-Bell, M.E., Clark, B.E., Shepard, M.K., Rivkin, A.S., Binzel, R.P., **Thomas, C.A.**, DeMeo, F.E., Bus, S.J., Shah, S. "Observations of X/M Asteroids Across Multiple Wavelengths." *Icarus*, **195**, 206-219, 2008.
1. Rivkin, A.S., Trilling, D.E, **Thomas, C.A.**, DeMeo, F.E., Spahr, T.B., Binzel, R.P. "Composition of the L5 Mars Trojans: Neighbors, not siblings." *Icarus*, **192**, 434-441, 2007.

Refereed Book Chapters

2. Reddy, V., Dunn, T., **Thomas, C.**, Moskovitz, N., Burbine, T. (2015) "Mineralogy and Surface Composition of Asteroids." In *Asteroids IV* (P. Michel et al., eds.), pp 43-63, Univ. of Arizona, Tucson.
1. Burbine, T.H., Rivkin, A.S., Noble, S.K., Mothé-Diniz, T., Bottke, W.F., McCoy, T.J., Dyar, M.D., **Thomas, C.A.** (2008). "Oxygen and Asteroids." In *Reviews in Mineralogy and Geochemistry Vol. 68: Oxygen in the Solar System* (G.J. MacPherson, ed.), pp. 273-343.

Conference Proceedings

55. **Thomas, C.A.**, Lim, L., Moskovitz, N., Trilling, D. (2015) "Searching for a Differentiated Asteroid Family: A Spectral Survey of the Massalia, Merxia, and Agnia Families." *BAAS* **47**, Abstract 308.13.
54. Moskovitz, N., Avner, L., Binzel, R., Burt, B., Christensen, E., DeMeo, F., Hinkle, M., Mommert, M., Person, M., Polishook, D., Schottland, R., Siu, H., Thirouin, A., **Thomas, C.**, Trilling, D, Wasserman, L., Willman, M. (2015) "The Mission Accessible Near-Earth Object Survey (MANOS)--First Results." *BAAS* **47**, Abstract 308.10.
53. Mommert, M., Harris, A.W., Mueller, M., Hora, J.L., Trilling, D.E., Knight, M., Bottke, W.F., **Thomas, C.A.**, Delbo, M., Emery, J.P., Fazio, G., Smith, H.A. (2015) "Dormant Comets in the Near-Earth Asteroid Population." *BAAS* **47**, Abstract 308.04.
52. Wigton, N., Emery, J., **Thomas, C.**, Rivkin, A. (2015) "3- μ m spectroscopy of Near-Earth Asteroids: Searching for OH/H₂O on small planetary bodies." *BAAS* **47**, Abstract 106.06.
51. Moskovitz, N., Thirouin, A., Binzel, R., Burt, B., Christensen, E., DeMeo, F., Endicott, T., Hinkle, M., Mommert, M., Person, M., Polishook, D., Siu, H, **Thomas, C.**, Trilling, D, Willman, M. (2015) "The Mission Accessible Near-Earth Object Survey (MANOS)--Science Highlights." IAU Symposium 318: Asteroids.
50. Sonneborn, G., Milam, S., **Thomas, C.**, Rivkin, A., Stansberry, J. (2015) "Advances in Asteroid Science with the James Webb Space Telescope." IAU Symposium 318: Asteroids.

49. Hinkle, M.L., Moskovitz, N., Trilling, D., Binzel, R., DeMeo, F., **Thomas, C.**, Polishook, D., Person, M., Willman, M., Christensen, E. (2015) "The Bias-Corrected Taxonomic Distribution of Mission Accessible Small Near-Earth Objects." IAU Symposium 318: Asteroids.
48. Thirouin, A., Moskovitz, N., Binzel, R., Christensen, E., DeMeo, F., Person, M., Polishook, D., **Thomas, C.**, Trilling, D., Willman, M., Burt, B., Hinkle, M., Mommert, M. (2015) "The Mission Accessible Near-Earth Object Survey (MANOS): first photometric results." IAU Symposium 318: Asteroids
47. **Thomas, C.A.** (2015) "Connecting Near-Earth Objects, Meteorites, and Main Belt Source Regions." *Invited*, IAU Symposium 318: Asteroids.
46. Hinkle, M.L., Moskovitz, N.A., Trilling, D.E., Binzel, R.P., **Thomas, C.A.**, Polishook, D., DeMeo, F.E., Willman, M., Christensen, E., Person, M. (2015) "The Taxonomic Distribution of Mission Accessible Small Near-Earth Asteroids." *LPSC*, Abstract 1029.
45. Noll, K.S., McFadden, L.A., Rhoden, A.R., Lim, L.F., Boynton, W.V., Carter, L.M., Collins, G., Englander, J.A., Goossens, S., Grundy, W.M., Li, J.-Y., Mottola, S., Oberst, J., Orosei, R., Parsons, A.M., Preusker, F., Reuter, D.C., Simon, A.A., **Thomas, C.A.**, Walsh, K., Zolensky, M.E. (2015) "DARE: Dark Asteroid Rendezvous." *LPSC*, Abstract 2835.
44. **Thomas, C.A.** (2015) "Surface Composition of Asteroids." *Invited*, Ground and Space Observatories: a joint venture to planetary science.
43. Lim, L.F., Starr, R.D., Evans, L.G., Parsons, A.M., Zolensky, M.E., Boynton, W.V., **Thomas, C.A.** (2014). "Orbital Measurement of Bulk Carbon, Hydrogen, Oxygen, and Sulfur of Carbonaceous Asteroids via High Energy Resolution Gamma-Ray Spectroscopy." *BAAS* **46**, Abstract 415.07.
42. **Thomas, C.A.**, Rivkin, A.S., Trilling, D.E., Moskovitz, N.A. (2014). "Spectra of Small Koronis Family Members." *Asteroids, Comets, Meteors 2014*.
41. Lim, L.F., Moskovitz, N.A., **Thomas, C.A.**, Howell, E.S., Emery, J.P., Benner, L. (2014). "Thermal Emission Photometry of Three Near-Earth Asteroids in L' and M'." *LPSC*, Abstract 1695.
40. **Thomas, C.A.**, Emery, J.P., Trilling, D.E., Delbo, M., Hora, J.L., Mueller, M. (2013). "Near-infrared Spectroscopy of Warm Spitzer-observed Near-Earth Objects." *BAAS* **45**, Abstract 205.07.
39. Abell, P., Moskovitz, N., Trilling, D., **Thomas, C.**, Willman, M., Grundy, W., Roe, H., Christensen, E., Person, M., Binzel, R., Polishook, D., DeMeo, F., Endicott, T., Busch, M. (2013). "The Mission Accessible Near-Earth Objects Survey (MANOS)." *BAAS* **45**, Abstract 208.30.
38. **Thomas, C. A.**, Trilling, D. E., Rivkin, A. S. (2012). "Spectra and Albedos of Small Koronis Family Members." *BAAS* **44**, Abstract 110.08.
37. Mommert, M., Harris, A. W., Trilling, D. E., Mueller, M., Hora, J. L., Delbo, M., Bottke, W. F., Emery, J. P., Fazio, G., Hagen, A. R., Morbidelli, A., Smith, H.A., **Thomas, C. A.** (2012). "ExploreNEOs: A Search for Near-Earth Objects of Cometary Origin." *BAAS* **44**, Abstract 302.03.
36. **Thomas, C. A.**, Emery, J. P., Trilling, D. E., Delbo, M., Hora, J. L., Mueller, M. (2012). "Physical Characterization of Warm Spitzer Observed Near-Earth Objects." *Asteroids, Comets, Meteors 2012*, LPI Contribution No. 1667, id. 6466.
35. Trilling, D. E., Hora, J. L., Mueller, M., **Thomas, C. A.**, Harris, A. W., Hagen, A. R., Mommert, M., Benner, L., Bhattacharya, B., Bottke, W. F., Chesley, S., Delbo, M., Emery, J. P., Fazio, G., Kistler, J. L., Mainzer, A., Morbidelli, A., Penprase, B., Smith, H. A., Spahr, T. B., Stansberry, J. A. (2012). "ExploreNEOs: The Warm Spitzer Near Earth Object Survey." *Asteroids, Comets, Meteors 2012*, LPI Contribution No. 1667, id. 6485.

34. Binzel, R. P., DeMeo, F. E., Lockhart, M., Spivakovsky-Gonzalez, P., Polishook, D., Tokunaga, A., **Thomas, C. A.**, Rivkin, A. S., Bus, S. J., Birlan, M., Vernazza, P. (2012). "Compositional Distribution of the Near-Earth Object Population." *Asteroids, Comets, Meteors 2012*, LPI Contribution No. 1667, id. 6433.
33. Bowell, E., Oszkiewicz, D. A., Wasserman, L. H., Muinonen, K., Penttilä, A., Trilling, D., **Thomas, C.**, Pieniluoma, T. "Asteroid Absolute Magnitudes and Geometric Albedos from Lowell Observatory Database." *Asteroids, Comets, Meteors 2012*, LPI Contribution No. 1667, id. 6434.
32. **Thomas, C.A.**, Trilling, D.E., Emery, J.P., Mueller, M., Hora, J.L., Benner, L.A.M., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbo, M., Fazio, G., Harris, A.W., Mainzer, A., Mommert, M., Morbidelli, A., Penprase, B., Smith, H.A., Spahr, T.B., Stansberry, J.A. (2011). "ExploreNEOs: Average albedo by taxonomic complex in the near-Earth asteroid population." EPSC-DPS2011-1531.
31. **Thomas, C.A.**, Linder, T., Trilling, D.E., Rivkin, A.S. (2011). "Spectrophotometric trends within Main-Belt asteroid families using the SDSS Moving Object Catalog." EPSC-DPS2011-1595.
30. Mueller, M., Trilling, D.E., Hora, J.L., Harris, A.W., and the ExploreNEOs team (2011). "ExploreNEOs: The Warm Spitzer Near-Earth Object survey." EPSC-DPS2011-839.
29. Oszkiewicz, D.A., Bowell, E., Wasserman, L.H., Muinonen, K., Penttilä, A., Pieniluoma, T., Trilling, D.E., **Thomas, C.A.** (2011). "Information on asteroid taxonomy contained in phase curves." EPSC-DPS2011-1539.
28. **Thomas, C.A.**, Rivkin, A.S., Trilling, D.E., Enga, M., Grier, J.A. (2010). "Space Weathering of Small Koronis Family Members." *BAAS* **42**, Abstract 46.07.
27. Trilling, D.E., Mueller, M., Hora, J.L., Harris, A.W., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbo, M., Emery, J.P., Fazio, G., Mainzer, A., Mommert, M., Penprase, B., Smith, H.A., Spahr, T.B., Stansberry, J.A., **Thomas, C.A.** (2010). "ExploreNEOs: Status and Results from the Warm Spitzer NEO Survey." *BAAS* **42**, Abstract 57.06.
26. Harris, A.W., Mommert, M., Hora, J.L., Mueller, M., Trilling, D.E., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbo, M., Emery, J.P., Fazio, G.G., Mainzer, A., Penprase, B., Smith, H.A., Spahr, T.B., Stansberry, J.A., **Thomas, C.A.** (2010). "The Accuracy of the Warm Spitzer Near-Earth Object Survey." *BAAS* **42**, Abstract 57.07.
25. Mueller, M., Delbo, M., Trilling, D.E., Bhattacharya, B., Bottke, W.F., Chesley, S., Emery, J.P., Fazio, G.G., Harris, A.W., Hora, J.L., Mainzer, A., Mommert, M., Penprase, B., Smith, H.A., Spahr, T.B., Stansberry, J.A., **Thomas, C.A.** (2010). "ExploreNEOs III: Size, Albedo, and Thermal History of 58+ Low-deltaV NEOs." *BAAS* **42**, Abstract 57.08.
24. Kistler, J., Trilling, D.E., Mueller, M., Hora, J.L., Harris, A.W., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbo, M., Emery, J.P., Fazio, G.G., Mainzer, A., Penprase, B., Smith, H.A., Spahr, T.B., Stansberry, J.A., **Thomas, C.A.** (2010). "Bulk Densities of Binary Asteroids from the Warm Spitzer NEO Survey." *BAAS* **42**, Abstract 57.09.
23. Emery, J.P., **Thomas, C.A.**, Trilling, D.E., Dave, R., Delbo, M., Mueller, M. (2010). "Near-infrared Spectroscopy of NEOs: Characterization of Targets of the ExploreNEOs (Spitzer) Program." *BAAS* **42**, Abstract 13.20.
22. Petersen, E., **Thomas, C.**, Trilling, D., Emery, J., Delbo, M., Mueller, M., Dave, R. (2010). "Taxonomic Classification of Asteroids via Broadband Near-Infrared Photometry." *BAAS* **42**, Abstract 39.22.

21. Binzel, R.P., DeMeo, F.E., **Thomas, C.A.**, Vernazza, P. (2010). "Space Weathering Trends Revealed by Principal Component Analysis: Looking Beyond the Slope." *BAAS* **42**, Abstract 60.04.
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