

## Mark Vincent Sykes

Planetary Science Institute, 1700 E. Fort Lowell, Suite 106, Tucson AZ 85721  
520-622-6300 sykes@psi.edu

### BIRTH

Portland, Oregon  
September 12, 1955

### EDUCATION

<b>Juris Doctor</b> (Admitted to Arizona Bar, Federal District Court)	<b>1998</b>
UNIVERSITY OF ARIZONA COLLEGE OF LAW	TUCSON, ARIZONA
<b>Doctor of Philosophy</b>	<b>1986</b>
UNIVERSITY OF ARIZONA, DEPARTMENT OF PLANETARY SCIENCES	TUCSON, ARIZONA
<b>Master of Electronic Science</b>	<b>1982</b>
OREGON GRADUATE INSTITUTE, DEPARTMENT OF APPLIED PHYSICS	BEAVERTON, OREGON
<b>B.A. Honors College</b>	<b>1978</b>
UNIVERSITY OF OREGON, DEPARTMENT OF PHYSICS	EUGENE, OREGON

### EMPLOYMENT

<b>CEO and Director, Planetary Science Institute</b>	<b>2004-Present</b>
Astronomer, Steward Observatory, University of Arizona	2003-2004
Associate Astronomer	1993-2003
Assistant Astronomer	1988-1993
Research Associate	1987-1988

### PROFESSIONAL SERVICE

2020	Member, Solar Cruiser Infusion Technology Advisory Board
2019	Chair, NASA Lunar Reconnaissance Orbiter Senior Review
2019	Chair, NASA Mars Express Senior Review
2019	Member, NASA Mars Science Laboratory Senior Review
2016	NASA Small Bodies Assessment Group Special Action Team – Asteroid Retrieval Mission
2016	NASA Planetary Mission Senior Review – Mars Panel
2016	NASA Planetary Mission Senior Review – Solar System Exploration Panel
2012	Applicability of High-Altitude Balloon Platform to NASA Planetary Science Workshop, Small Bodies Lead
2010-2014	Planetary Resources, Inc., Advisory Board Member
2010-2013	Member, NASA Planetary Science Subcommittee (NASA Advisory Council)
2008-2009	Member, NRC Panel on The Role and Scope of Mission-Enabling Activities in NASA's Space and Earth Science Missions
2007-2014	NASA Small Bodies Assessment Group Steering Committee, Chair (2009-2013), Past Chair (2013-2014)
2007-present	Editor and Founder, Planetary Exploration Newsletter
2007	Member, NASA In-Space Propulsion Technology Review Board
2006-2009	Board of Directors, Astronomical Society of the Pacific
2005-present	Board of Trustees, Planetary Science Institute
2004-2006	Chair, Federal Relations Subcommittee, AAS Division for Planetary Sciences
2003-2004	NASA-NSF Astronomy and Astrophysics Advisory Committee (FACA)
2002-2006	Chair, NASA Planetary Data System Working Group
2002-2006	Committee on Astronomy and Public Policy, American Astronomical Society
2001-2002	Consulting Member, Science Definition Team for National Virtual Observatory Initiative
2001-2002	Chair, Prize Committee, AAS Division for Planetary Science
2000-2001	Chair, AAS Division for Planetary Science
1999-2000	Vice-Chair, AAS Division for Planetary Science
1996-1999	DPS Committee Member

1996	Program Chair, 28th Annual DPS Meeting. Tucson, Arizona
1995	Program Committee, 27th Annual DPS Meeting. Kona, Hawaii
1993-1997	Infrared Processing and Analysis Center (IPAC) User Committee
1993	Organizer and Moderator, Space Energy Resource Utilization Initiative Workshop. Lafayette, Louisiana.
1992-1995	DPS Nominating Subcommittee. Chair, 1994-1995.
1992-1995	NASA Planetary Science Data Steering Group. Chair, Spacecraft data rights subcommittee.
1990	Space Exploration Initiative Lunar Outpost Site Selection Strategy Workshop II. Johnson Space Center. Astronomy and Astrophysics Working Group.
1990	Space Exploration Initiative Lunar Outpost Site Selection Strategy Workshop I. Johnson Space Center. Astronomy and Astrophysics Working Group.
1989	Lunar Science Strategy Workshop (for the Exploration and Development of the Moon). Astronomy and Astrophysics Working Group. Johnson Space Center.
1989	Cosmic Background Explorer (COBE) Data Acquisition and Analysis (Pre-Flight) Review. Goddard Space Flight Center.
1989-present	Numerous NASA/NSF proposal review panels, Member and Chair.

## PROFESSIONAL SOCIETIES

American Astronomical Society, Division for Planetary Sciences  
 International Astronomical Union  
 American Geophysical Union  
 Geological Society of America  
 American Association for the Advancement of Science  
 Arizona Bar Association  
 American Guild of Musical Artists

## SCIENCE ACCOMPLISHMENTS

Invented an analog method of creating a regular 2-D array of spatial filters of nearly arbitrary radial profile (1980).  
 Developed individual disruption model for the origin of asteroid dust bands, confirmed after 17 years by others (1986).  
 Discovered cometary dust trails (1986).  
 Discovered numerous asteroidal dust bands (1987).  
 Determined that Pluto is not isothermal (1987).  
 Determined that comets are by mass largely refractory, not ice (1992, with R. Walker).  
 Used dark asteroid spectra to constrain the thermal environment of the early solar system (1995, with F. Vilas).  
 NASA Dawn Discovery mission initial design (2000, with K. Hack and L. Gefert, NASA GRC).  
 Articulated the geophysical definition for 'planet' and its basis (2008).

## SCIENCE PUBLICATIONS

### BOOKS

*The Future of Solar System Exploration, 2003-2013 - Community Contributions to the NRC Solar System Exploration Decadal Survey* (M.V. Sykes, Ed.). ASP Conference Proceedings, Vol. 272. San Francisco, Astronomical Society of the Pacific, 2002. 433 pgs.

### PAPERS

- Turyshchev, S.G., D. Garber, L.D. Friedman, A.M. Hein, N. Barnes, K. Batygin, M.E. Brown, L. Cronin, A. Davoyan, A. Dubill, T.M. Eubanks, S. Gibson, D.M. Hassler, N.R. Izenberg, P. Kervella, P.D. Mauskopf, N. Murphy, A. Nutter, C. Porco, D. Riccobono, J. Schalkwyk, K.B. Stevenson, M.V. Sykes, M. Sultana, V.T. Toth, M. Velli, S.P. Worden (2023). Science opportunities with solar sailing smallsats. *Planet. & Sp. Science*, Metzger, P.T., W.M. Grundy, M.V. Sykes, A. Stern, J.F. Bell, C. Detelich, K. Runyon, M. Summers (2022). Moons are planets: Scientific usefulness versus cultural teleology in the taxonomy of planetary science. *Icarus* **374**, article id. 114768.
- Schenk, P., J. Castillo-Rogez, K.A. Otto, S. Marchi, D. O'Brien, M. Bland, K. Hughson, B. Schmidt, J. Scully, D. Buczkowski, K. Krohn, T. Hoogenboom, G. Kramer, V. Bray, A. Neesemann, H. Hiesinger, T. Platz, M.C. De Sanctis, S. Schroeder, L. Le Corre, L. McFadden, M. Sykes, C. Raymond, C.T. Russell (2021). Compositional control on impact crater formation on mid-sized planetary bodies: Dawn at Ceres and Vesta, Cassini at Saturn. *Icarus* **359**, id. 114343.
- Lisse, C., J. Bauer, D. Cruikshank, J. Emery, Y. Fernández, E. Fernández-Valenzuela, M. Kelley, A. McKay, W. Reach, Y. Pendleton, N. Pinilla-Alonso, J. Stansberry, M. Sykes, D.E. Trilling, D. Wooden, D. Harker, R. Gehrz, C. Woodward (2020). Spitzer's Solar System studies of comets, centaurs and Kuiper belt objects. *Nat. Astron.* **4**, 930-939.
- Li, J.-Y., A. Moullet, T.N. Titus, H.H. Hsieh, M.V. Sykes (2020). Disk-integrated thermal properties of Ceres measured at millimeter wavelengths. *Astron. J.* **159**, id.215
- Rodriguez, J.A.P., G.J. Leonard, J.S. Kargel, D. Domingue, D.C. Berman, M. Banks, M. Zarroca, R. Linares, S. Marchi, V.R. Baker, K.D. Webster, M. Sykes (2020). The chaotic terrains of Mercury reveal a history of planetary volatile retention and loss in the innermost Solar System. *Nature Scientific Repts.* **10**, id. 4737, DOI:10.1038/s41598-020-59885-5.
- Ruesch, O., L.C. Quick, M.E. Landis, M.M. Sori, O. Čadek, P. Brož, K.A. Otto, M.T. Bland, S. Byrne, J.C. Castillo-Rogez, H. Hiesinger, R. Jaumann, K. Krohn, L.A. McFadden, A. Nathues, A. Neesemann, F. Preusker, T. Roatsch, P.M. Schenk, J.E.C. Scully, M.V. Sykes, D.A. Williams, C.A. Raymond, C.T. Russell (2019). Bright carbonate surfaces on Ceres as remnants of salt-rich water fountains. *Icarus* **320**, 39-48.
- Quick, L.C., D.L. Buczkowski, O. Ruesch, J.E.C. Scully, J. Castillo-Rogez, C.A. Raymond, P.M. Schenk, H.G. Sizemore, M.V. Sykes (2019). A possible brine reservoir beneath Occator Crater: Thermal and compositional evolution and formation of the Cerealia Dome and Vinalia Faculae. *Icarus* **320**, 119-135.
- Metzger, P.T., M.V. Sykes, A. Stern, K. Runyon (2019). The reclassification of asteroids from planets to non-planets. *Icarus* **319**, 21-32.
- McFadden, L.A., D.R. Skillman, N. Memarsadeghi, U. Carsenty, S.E. Schröder, J.-Y. Li, S. Mottola, M. Mutchler, B. McLean, S.P. Joy, C.A. Polanskey, M.D. Rayman, P.D. Fieseler, M.V. Sykes, A. Nathues, P. Gutiérrez-Marques, H.U. Keller, C.A. Raymond, C.T. Russell (2018). Dawn mission's search for satellites of Ceres: Intact protoplanets don't have satellites. *Icarus* **316**, 191-204.
- Schröder, S.E., J.Y. Li, M.D. Rayman, S.P. Joy, C.A. Polanskey, U. Carsenty, J.C. Castillo-Rogez, M. Ciarniello, R. Jaumann, A. Longobardo, L.A. McFadden, S. Mottola, M. Sykes, C.A. Raymond, C.T. Russell (2018). Ceres' opposition effect observed by the Dawn framing camera. *Astron. & Astrophys.* **620**, DOI:10.1051/0004-6361/201833596

- Travis, B.J., P.A. Bland, W.C. Feldman, M.V. Sykes (2018). Hydrothermal dynamics in a CM-based model of Ceres. *Meteor. & Plan. Sci.* **53**, 2008-2032.
- Pieters, C.M., A. Nathues, G. Thangjam, M. Hoffmann, T. Platz, M.C. de Sanctis, E. Ammannito, F. Tosi, F. Zambon, J.H. Pasckert, H. Hiesinger, S.E. Schröder, R. Jaumann, K.-D. Matz, J.C. Castillo-Rogez, O. Ruesch, L.A. McFadden, D.P. O'Brien, M. Sykes, C.A. Raymond, C.T. Russell (2018). Geologic constraints on the origin of red organic-rich material on Ceres. *Meteor. & Plan. Sci.* **53**, 1983-1998.
- Hsieh, H.H., K. Yoonyoung, A. Fitzsimmons, M.V. Sykes (2018). Search for dust emission from (24) Themis using the Gemini-North observatory. *Publ. Astr. Soc. Pac.* 130:084402.
- Landis, M.E., S. Byrne, N. Schörghofer, B.E. Schmidt, P.O. Hayne, J. Castillo-Rogez, M.V. Sykes, J.-P. Combe, A.I. Ermakov, T.H. Prettyman, C.A. Raymond, C.T. Russell (2017). Conditions for sublimating water ice to supply Ceres' exosphere. *J. Geophys. Res. Planets* **122**, 1984-1995.
- Palmer, E.E., J.N. Head, R.W. Gaskell, M.V. Sykes, B. McComas (2016). Mercator - Independent rover localization using stereophotoclinometry and panoramic images. *Earth & Sp. Sci.* **3**, 488-509.
- Nathues, A., M. Hoffmann, T. Platz, G.S. Thangjam, E.A. Cloutis, V. Reddy, L. Le Corre, J.-Y. Li, K. Mengel, A. Rivkin, D.M. Applin, M. Schaefer, U. Christensen, H. Sierks, J. Ripken, B.E. Schmidt, H. Hiesinger, M.V. Sykes, H.G. Sizemore, F. Preusker, C.T. Russell (2016). FC colour images of dwarf planet Ceres reveal a complicated geological history. *Plan. Sp. Sci.* **134**, 122-127.
- Buczkowski, D.L., B.E. Schmidt, D.A. Williams, S.C. Mest, J.E.C. Scully, A.I. Ermakov, F. Preusker, P. Schenk, K.A. Otto, H. Hiesinger, D. O'Brien, S. Marchi, H. Sizemore, K. Hughson, H. Chilton, M. Bland, S. Byrne, N. Schorghofer, T. Platz, R. Jaumann, T. Roatsch, M.V. Sykes, A. Nathues, M.C. De Sanctis, C.A. Raymond, C.T. Russell (2016). The geomorphology of Ceres. *Science* **353**, aaf4332.
- Ruesch, O., T. Platz, P. Schenk, L.A. McFadden, J.C. Castillo-Rogez, L. Quick, S. Byrne, F. Preusker, D.P. O'Brien, N. Schmedemann, D.A. Williams, J.-Y. Li, M.T. Bland, H. Hiesinger, T. Kneissl, A. Neesemann, M. Schaefer, J.H. Pasckert, B.E. Schmidt, D.L. Buczkowski, M.V. Sykes, A. Nathues, T. Roatsch, M. Hoffmann, C.A. Raymond, C.T. Russell (2016). Cryovolcanism on Ceres. *Science* **353**, aaf4286.
- Li, J.-Y., V. Reddy, A. Nathues, L. Le Corre, M.R.M. Izawa, E.A. Cloutis, M.V. Sykes, U. Carsenty, J.C. Castillo-Rogez, M. Hoffmann, R. Jaumann, K. Krohn, S. Mottola, T.H. Prettyman, M. Schaefer, P. Schenk, S.E. Schröder, D.A. Williams, D.E. Smith, M.T. Zuber, A.S. Konopliv, R.S. Park, C.A. Raymond, C.T. Russell (2016). Surface albedo and spectral variability of Ceres. *Astrophys. J. Lett.* **817**, L22-L2.
- Nathues, A., M. Hoffmann, M. Schaefer, L. Le Corre, V. Reddy, T. Platz, E.A. Cloutis, U. Christensen, T. Kneissl, J.-Y. Li, K. Mengel, N. Schmedemann, T. Schaefer, C.T. Russell, D.M. Applin, D.L. Buczkowski, M.R.M. Izawa, H.U. Keller, D.P. O'Brien, C.M. Pieters, C.A. Raymond, J. Ripken, P.M. Schenk, B.E. Schmidt, H. Sierks, M.V. Sykes, G.S. Thangjam, J.-B. Vincent (2015). Sublimation in bright spots on (1) Ceres. *Nature* **528**, 237-240.
- McFadden, L.A., D.R. Skillman, N. Memarsadeghi, J.-Y. Li, S.P. Joy, C.A. Polansky, M.D. Rayman, M.V. Sykes, P. Tricarico, E. Palmer, D.P. O'Brien, S. Mottola, U. Carsenty, M. Mutchler, B. McLean, S.E. Schröder, N. Mastrodemos, C. Schiff, H.U. Keller, A. Nathues, P. Gutiérrez-Marques, C.A. Raymond, C.T. Russell (2015). Vesta's missing moons: Comprehensive search for natural satellites of Vesta by the Dawn spacecraft. *Icarus* **257**, 207-216.
- Vincent, J.-B., P. Schenk, A. Nathues, H. Sierks, M. Hoffmann, R.W. Gaskell, S. Marchi, D.P. O'Brien, M. Sykes, C.T. Russell, M. Fulchignoni, H.U. Kellerg, C. Raymond, E. Palmer, F. Preusker (2014). Crater depth-to-diameter distribution and surface properties of (4) Vesta. *Planet. Sp. Sci.* **103**, 57-65.
- Tricarico, P., N.H. Samarasinha, M.V. Sykes, J.-Y. Li, T.L. Farnham, M.S.P. Kelley, D. Farnocchia, R. Stevenson, J.M. Bauer and R.E. Lock (2014). Delivery of dust grains from Comet C/2013 A1 (Siding Spring) to Mars. *Astrophys. J. Lett.* **787**, L35-L39.
- Buratti, B.J., P.A. Dalba, M.D. Hicks, V. Reddy, M.V. Sykes, T.B. McCord, D.P. O'Brien, C.M. Pieters, T.H. Prettyman, L.A. McFadden, A. Nathues, L. Le Corre, S. Marchi, C. Raymond,

- and C. Russell (2013). Vesta, vestoids, and the HED meteorites: Interconnections and differences based on Dawn Framing Camera observations. *J. Geophys. Res. Planets* **118**, 1991-2003.
- Noble, R.J. and M.V. Sykes (2013). Small body exploration technologies as precursors for interstellar robotics. *J. Brit. Interpl. Soc.* **66**, 15-24.
- Jaumann, R., D.A. Williams, D.L. Buczkowski, R.A. Yingst, F. Preusker, H. Hiesinger, N. Schmedemann, T. Kneissl, J.B. Vincent, D.T. Blewett, B.J. Buratti, U. Carsenty, B.W. Denevi, M.C. De Sanctis, W.B. Garry, H.U. Keller, E. Kersten, K. Krohn, J.-Y. Li, S. Marchi, K.D. Matz, T.B. McCord, H.Y. McSween, S.C. Mest, D.W. Mittlefehldt, S. Mottola, A. Nathues, G. Neukum, D.P. O'Brien, C.M. Pieters, T.H. Prettyman, C.A. Raymond, T. Roatsch, C.T. Russell, P. Schenk, B.E. Schmidt, F. Scholten, K. Stephan, M.V. Sykes, P. Tricarico, R. Wagner, M.T. Zuber, H. Sierks (2012). Vesta's shape and morphology. *Science* **336**, 687-690.
- Russell, C.T., C.A. Raymond, A. Coradini, H.Y. McSween, M.T. Zuber, A. Nathues, M.C. De Sanctis, R. Jaumann, A.S. Konopliv, F. Preusker, S.W. Asmar, R.S. Park, R. Gaskell, H.U. Keller, S. Mottola, T. Roatsch, J.E.C. Scully, D.E. Smith, P. Tricarico, M.J. Toplis, U.R. Christensen, W.C. Feldman, D.J. Lawrence, T.J. McCoy, T.H. Prettyman, R.C. Reedy, M.V. Sykes, T.N. Titus (2012). Dawn at Vesta: Testing the protoplanetary paradigm. *Science* **336**, 684-686.
- O'Brien, D.P., M.V. Sykes (2011). The origin and evolution of the asteroid belt - Implications for Vesta and Ceres. *Sp. Science Revs.* **163**, 41-61.
- Chamberlain, M.A., M.V. Sykes, E.F. Tedesco (2011). Mid-infrared lightcurve of Vesta. *Icarus* **215**, 57-61.
- Bieryla, A., J.W. Parker, E.F. Young, L.A. McFadden, C.T. Russell, S.A. Stern, M.V. Sykes, B. Gladman (2011). A search for satellites around Ceres. *Astron. J.* **141**, 197-199.
- Tricarico, P. and M.V. Sykes (2010). The dynamical environment of Dawn at Vesta. *Planet. Sp. Sci.* **58**, 1516-1525.
- Li, J.-Y., L.A. McFadden, P.C. Thomas, M.J. Mutchler, J.W. Parker, E.F. Young, C.T. Russell, M.V. Sykes, B.E. Schmidt (2010). Photometric mapping of Asteroid (4) Vesta's southern hemisphere with Hubble Space Telescope. *Icarus* **208**, 238-251.
- Agarwal, J., M. Mueller, W.T. Reach, M.V. Sykes, H. Boehnhardt, E. Gruen (2010). The dust trail of Comet 67P/Churyumov-Gerasimenko between 2004 and 2006. *Icarus* **207**, 992-1012.
- Reach, W.T., J. Vaubaillon, M.S. Kelley, C.M. Lisse, and M.V. Sykes (2009). Distribution and properties of fragments and debris from the split Comet 73P/Schwassmann-Wachmann 3 as revealed by Spitzer Space Telescope. *Icarus* **203**, 571-588.
- Chamberlain, M.A., A.J. Lovell, M.V. Sykes (2009). Submillimeter photometry and lightcurves of Ceres and other large asteroids. *Icarus* **202**, 487-501.
- Sykes, M.V. (2008). The planet debate continues. *Science* **319**, 1765.
- Nesvorny, D., W.F. Bottke, D. Vokrouhlicky, M.V. Sykes, D. Lien, and J. Stansberry (2008). Origin of the near-ecliptic circumsolar dust band. *Astrophys. J.* **679**, L142-L146.
- Chamberlain, M.A., A.J. Lovell, and M.V. Sykes (2007). Submillimeter lightcurves of Vesta. *Icarus* **192**, 448-459.
- Russell, C.T., F. Capaccioni, A. Coradini, M.C. De Sanctis, W.C. Feldman, R. Jaumann, H.U. Keller, T.B. McCord, L.A. McFadden, S. Mottola, C.M. Pieters, T.H. Prettyman, C.A. Raymond, M.V. Sykes, D.E. Smith and M.T. Zuber (2007). Dawn mission to Vesta and Ceres. *Earth, Moon, Planets* **101**, 65-91.
- Reach, W.T., M.S. Kelley, and M.V. Sykes (2007). A survey of debris trails from short-period comets. *Icarus* **191**, 298-322.
- Sykes, M.V. (2007). The great planet debate. *Spark* **3**, 8-9.
- Lisse, C.M., M.V. Sykes, D. Trilling, J. Emery, Y. Fernandez, H.B. Hammel, B. Bhattacharya, E. Ryan, and J. Stansberry (2007). Planetary science goals for the Spitzer Warm Era. In *The Science Opportunities of the Warm Spitzer Mission Workshop* (L.J. Storrie-Lombardi and N.A. Silbermann, Eds). AIP Conf. Series 943, 184-212.
- Lynch, D.K., R.W. Russell, R.J. Rudy, S. Mazuk, C.C. Venturini, H.B. Hammel, M.V. Sykes, R.C. Puetter, and P.R. Brad (2007). Infrared Spectra of Deimos (1-13 microns) and Phobos (3-13 microns). *Astron. J.* **134**, 1459-1463.

- Chamberlain, M.A., M.V. Sykes, and G.A. Esquerdo (2007). Ceres lightcurve analysis - Period determination. *Icarus* **188**, 451-456.
- Russell, C.T., M.A. Barucci, R.P. Binzel, M.T. Capria, U. Christensen, A. Coradini, M.C. de Sanctis, W.C. Feldman, R. Jaumann, H.U. Keller, A.S. Konopliv, T.B. McCord, L.A. McFadden, K.D. McKeegan, H.Y. McSween, S. Mottola, A. Nathues, G. Neukum, C.M. Pieters, T.H. Prettyman, C.A. Raymond, H. Sierks, D.E. Smith, T. Spohn, M.V. Sykes, F. Vilas, and M.T. Zuber (2007). Exploring the asteroid belt with ion propulsion: Dawn mission history, status and plans. *Adv. Sp. Res.* **40**, 193-201.
- Nesvorny, D., M. Sykes, D.J. Lien, J. Stansberry, W.T. Reach, D. Vokrouhlicky, W.F. Bottke, D.D. Durda, S. Jayaraman, and R.G. Walker (2006). Candidates for asteroid dust trails. *Astron. J.* **132**, 582-595.
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- Nesvorny D., , D. Vokrouhlick, W.F. Bottke, and M. Sykes (2006). Physical properties of asteroid dust bands and their sources. *Icarus* **181**, 107-144.
- Rivkin, A.S., L.A. McFadden, R.P. Binzel, and M. Sykes (2006). Rotationally-resolved spectroscopy of Vesta I: 2-4 micron region. *Icarus* **180**, 464-472.
- Russell, C.T., F. Capaccioni, A. Coradini, U. Christensen, M.C. de Sanctis, W.C. Feldman, R. Jaumann, H.U. Keller, A. Konopliv, T.B. McCord, L.A. McFadden, H.Y. McSween, S. Mottola, G. Neukum, C.M. Pieters, T.H. Prettyman, C.A. Raymond, D.E. Smith, M.V. Sykes, B. Williams, and M.T. Zuber (2006). Dawn Discovery mission to Vesta and Ceres: Present status. *Adv. Sp. Res.* **38**, 2043-2048.
- Parker, J.W., L.A. McFadden, C.T. Russell, S.A. Stern, M.V. Sykes, P.C. Thomas, and E.F. Young (2006). Ceres: High-resolution imaging with HST and the determination of physical properties. *Adv. Sp. Res.* **38**, 2039-2042.
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