

DENTON S. EBEL
CURATOR AND PROFESSOR
DIVISION OF EARTH AND PLANETARY SCIENCES

HIGHEST DEGREE EARNED

Ph.D.

AREA OF SPECIALIZATION

Meteorites, interstellar clouds, mineral and chemical origins of solar systems

EDUCATIONAL EXPERIENCE

Ph.D. in Geology, Purdue University Geology, 1993

M.S. in Geology, Purdue University, W. Lafayette, 1988

B.A. in Sociology, Harvard College, Cambridge, MA, 1982

PREVIOUS EXPERIENCE IN DOCTORAL EDUCATION

FACULTY APPOINTMENTS:

AMNH Masters of Arts in Teaching Program (Earth Sciences)

Adjunct Graduate Faculty, CUNY Graduate School and University Center, Ph.D.
Program in Earth & Environmental Sciences

Adjunct Associate Research Scientist, Lamont-Doherty Earth Observatory of Columbia
University

GRADUATE ADVISEES

E. Crapster-Pregont, Columbia U. (Earth & Environ. Sci.)

J. Bigolski, CUNY (Earth & Environ. Sci.)

GRADUATE COMMITTEES

C. McNally, Columbia U. (Astronomy)

A. Buono, Columbia U. (Earth & Environmental Sci.)

Joseph Boesenberg, Rutgers University, 2002-2007

RESEARCH GRANT SUPPORT

2010 Principal Investigator, NASA Cosmochemistry Program (# NNX10AI42G)
“Thermochemical Histories of the Earliest Solar System Solids” (4 yrs).

2010 Co-Principal Investigator, NSF MRI-R2 equipment grant.

“Acquisition of a High Resolution CT-Scanner at the American Museum of
Natural History” (3 yr)

2010 Principal Investigator, NASA LARS equipment grant (#NNX10AH06G)

“Partial Support for Upgrading a Laser Confocal Scanning Microscope for Non-
destructive High-resolution 3D Imaging of Cmet Sample Tracks in Aerogel
Returned by the Stardust Mission” (1 yr).

2008 Principal Investigator, NASA Cosmochemistry Program (# NNX09AE84G)

“Thermochemical and Petrological Exploration of the Earliest Solar System Solids” (1 yr)

2008 Principal Investigator, NASA SRLIDAP grant NNX09AC31G, (3 yr). “Laser Confocal Microscopy and X-ray Fluorescence Analysis of Grains in Aerogel”

2008 Co-Principal Investigator, NSF Cyber-Enabled Discovery Initiative (Type I)
“Combined Global Physical, Chemical, and Mineralogical Models of Protoplanetary Disks” PI: M-M. Mac Low, AMNH. (3 yrs)

RECENT ARTICLES IN REFEREED JOURNALS (2006-2011)

- (2011) Petrology and oxygen isotopic compositions of chondrules in E3 chondrites. Weisberg, M. K., D. S. Ebel, H. C. Connolly Jr., N. Kita and T. Ushikubo *Geochimica et Cosmochimica Acta* (in press).
- (2011) 3D analysis of whole Stardust tracks: A means for original impactor estimation. Greenberg, M., and D. S. Ebel *Meteoritics and Planetary Science* (in press)
- (2011) Radioactive elements on Mercury's surface from MESSENGER: Implications for the planet's formation and evolution. Peplowski, P. N., L. G. Evans, S. A. Hauck II, T. J. McCoy, W.V. Boynton, J. Gillis-Davis, D. S. Ebel, J. O. Goldsten, D. K. Hamara, D. J. Lawrence, R. L. McNutt Jr., L. R. Nittler, S. C. Solomon, E. A. Rhodes, A.L. Sprague, R. D. Starr, and K. R. Stockstill-Cahill. *Science* 333: 1850-1852.
- (2011) The major-element composition of Mercury's surface from MESSENGER x-ray spectrometry. Nittler, L. R., R. D. Starr, S. Z. Weider, T. J. McCoy, W. V. Boynton, D. S. Ebel, C. M. Ernst, L. G. Evans, J. O. Goldsten, D. K. Hamara, D. J. Lawrence, R. L. McNutt Jr., C. E. Schlemm II, S. C. Solomon, and A. L. Sprague. *Science* 333: 1847-1850.
- (2011) Laboratory experiments bearing on the origin and evolution of olivine-rich chondrules. Richter, F. M., R. A. Mendybaev, J. N. Christensen, D. S. Ebel, and A. Gaffney. *Meteoritics and Planetary Science* 46: 1152-1178.
- (2011) Equilibrium condensation from chondritic porous IDP enriched vapor: Implications for Mercury and enstatite chondrite origins. Ebel, D. S., and C. M. O'D. Alexander *Planetary and Space Sciences* (in press)
doi:10.1016/j.pss.2011.07.017.
- (2011) Sulfur in extraterrestrial bodies and the deep Earth. Ebel, D.S. In *Sulfur in Magmas and Melts: Its Importance for Natural and Technical Processes*, ed. H. Behrens, J. D. Webster. *Reviews in Mineralogy & Geochemistry* 73 Mineralogical Society of America, pp. 315-336.
- (2011) Magnetic evidence for a partially differentiated carbonaceous chondrite parent body. Carporzen, L., B. P. Weiss, L. Elkins-Tanton, D. L. Schuster, Ebel, D., and J. Gattacceca *Proceedings of the National Academy of Sciences* 108: 6386-6389.
- (2010) The solar system primordial lead. Blichert-Toft, J., B. Zanda, D.S. Ebel, and F. Albarède. *Earth and Planetary Science Letters* 300: 152-163.
- (2010) Far infrared spectroscopy of the carbonate minerals. Brusentova, T.N., R. E. Peale, D. Maukonen, G. E. Harlow, J. S. Boesenberg, and D. S. Ebel. *American Mineralogist* 95: 1515-1522.

- (2010) Laser Scanning Confocal Microscopy of Comet Material in Aerogel. Greenberg, M. and D. S. Ebel. *Geosphere* 6: 515-523.
- (2009) Incompletely compacted equilibrated ordinary chondrites. Sasso, M.R., R.J. Macke, J.S. Boesenberg, D.T. Britt, M.L. Rivers, D.S. Ebel and J.M. Friedrich. *Meteoritics and Planetary Science* 44: 1743-1753.
- (2009) 3-dimensional textural and compositional analysis of particle tracks and fragmentation history in aerogel. Ebel D.S., M. Greenberg, M.L. Rivers and M. Newville. *Meteoritics and Planetary Science* 44: 1445-1463.
- (2009) Laser ablation - inductively coupled plasma - mass spectrometry and its application in geochemistry, cosmochemistry and environmental research. Jochum K.P., B. Stoll, J.M. Friedrich, A. Marghaleray, S. Becker, M. Dücking, D.S. Ebel, J. Enzweiler, H. Ming-yue, D. Kuzmin, R. Mertz-kraus, W.E.G. Müller, J. Regnery, A. Sobolev, X-h. Wang, and X. Zhan. *Rock and Mineral Analysis* 28: 53-68.
- (2009) The Fountain Hills impact modified CB chondrite and thermal history of the CB asteroid. Weisberg, M.K., and D.S. Ebel. *Meteoritics and Planetary Science* 44: 201-210.
- (2008) Three-dimensional petrography of metal phases in equilibrated L chondrites – effects of shock loading and dynamic compaction. Friedrich, J.M., D.P. Wignarajah, S. Chaudhary, M.L. Rivers, C.E. Nehru and D.S. Ebel. *Earth and Planetary Science Letters* 275: 172-180.
- (2008) Hf-W mineral isochron for Ca-Al-rich inclusions: Age of the solar system and the timing of core formation in planetesimals. Burkhardt C., T. Kleine, B. Bourdon, H. Palme, J. Zipfel, J.M. Friedrich, and D.S. Ebel. *Geochimica et Cosmochimica Acta* 72: 6177-6197.
- (2008) Shape, metal abundance, chemistry and origin of chondrules in the Renazzo (CR) chondrite. Ebel, D.S., M.K. Weisberg, M.K., J. Hertz, and A.J. Campbell. *Meteoritics and Planetary Science* 43: 1725-1740.
- (2008) The formation conditions of chondrules and chondrites. Alexander, C.M.O'D., J.N. Grossman, D.S. Ebel and F.J. Ciesla. *Science* 320: 1617-1619.
- (2008) Pore size distribution in an uncompactd equilibrated ordinary chondrite. Friedrich J.M., R.J. Macke, D.P. Wignarajah, M.L. Rivers, D.T. Britt, and D.S. Ebel. *Planetary and Space Science*. 56: 895-900.
- (2007) Meteorite 3-dimensional synchrotron micro-tomography: Methods and applications. Ebel, D.S. and M.L. Rivers. *Meteoritics and Planetary Science* 42: 1627-1646.
- (2007) Micromagnetic coercivity distributions and interactions in chondrules with implications for paleointensities of the early solar system. Acton, G., Q.-Z. Yin, K. L., Verosub, L. Jovane, A. Roth, B. Jacobsen, and D. S. Ebel. *Journal of Geophysical Research* 112, B03S90, doi: 10.1029/2006JB004655.
- (2007) The origin of non-porphyrritic pyroxene chondrules in UOCs: Liquid solar nebula condensates? Engler, A., M.E. Varela, G. Kurat, D. Ebel, P. Sylvester. *Icarus* 192: 248-286.
- (2006) Comet 81P/Wild 2 under a microscope. Brownlee, D. et al. *Science* 314: 1711-1717.
- (2006) Mineralogy and petrology of comet Wild 2 nucleus samples. Zolensky, M.E. et al.

- (Stardust Mineralogy/Petrology Preliminary Examination Team) Science 314: 1735-1739.
- (2006) Thermochemistry of sulfide mineral solutions. Sack, R. O., and D. S. Ebel. In Sulfides, ed. D. Vaughan, *Reviews in Mineralogy* 60: 265-364. Mineralogical Society of America.
- (2006) Chemical processes in CAIs: A mostly CMAS view of melting and crystallization. Beckett, J., H.C. Connolly, and D.S. Ebel. In *Meteorites and the Early Solar System II*, (D. Lauretta et al., eds.) University of Arizona, Tucson. p. 399-429.
- (2006) Condensation of rocky material in astrophysical environments. Ebel, D.S. In *Meteorites and the Early Solar System II*, (D. Lauretta et al., eds.) University of Arizona, Tucson. p. 253-277.

SPECIAL RECOGNITION/AWARDS

2010 Elected Fellow, The Meteoritical Society

1992 Outstanding Graduate Student Award, Dept. of Earth and Atmospheric Sciences, Purdue

1988-1990 David Ross Graduate Fellowship, Purdue University Research Foundation

1982 Dedicated and Faithful Service Award, Dudley House, Harvard College