CURRICULUM VITAE
RICHARD DAVID ASH

1. Personal Information

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Nationality British

Education:	Ph.D.	1990	Open University, United Kingdom
	BSc	1986	Queen Mary College, University of London, UK

Employment:	2002-present	Research Associate, University of Maryland
	2001–2002	Visiting Associate Researcher, University of California, Los Angeles
	1999–2001	Research Fellow, University of Oxford
	1996–1999	Research Fellow Smithsonian Institution/Carnegie Institution
	1995–1996	Kalbfleisch Research Fellow, American Museum of Natural History
	1992–1995	Post-doctoral Research Associate, University of Manchester
	1990–1992	Post-doctoral Research Associate, Open University

Analytical Experience

Expertise in ICP-MS, both single- and multi-collector, by solution and laser ablation for isotope and trace element analysis and expertise in the isotopic analysis of both active and noble gases by dynamic and static gas source mass spectrometry and by GC/IRMS.

Experience with electron microscope and electron microprobe; analytical transmission; electron microscopy; electron diffraction; x-ray fluorescence; ICP-AES; and, infra-red spectroscopy.

RESEARCH, SCHOLARLY, & CREATIVE ACTIVITIES

a. Articles in Refereed Journals

Ash, R.D., Arden, J.W., Grady, M.M., Wright, I.P. and Pillinger, C.T. (1988) 'An interstellar dust component rich in ^{12}C'. *Nature* **336**, 228-230.

Ash, R.D., Arden, J.W., Grady, M.M., Wright, I.P. and Pillinger C.T. (1990) 'Recondite interstellar carbon in the Allende meteorite revelaed by preparative precombustion'. *Geochim. Cosmochim. Acta* **54**, 455-468.

Alexander, C.M.O'D., Arden, J.W., Ash, R.D. and Pillinger C.T. (1990) 'Presolar components in the ordinary chondrites'. *Earth Planet. Sci. Lett.* **99**, 220-229.

Bischoff, A., Palme, H., Ash, R.D., Clayton, R.N., Schultz, L., Herpers, U., Stöffler, D., Grady, M.M., Pillinger, C.T., Spettel, B., Weber, H., Grund, T., Endress, M. and Weber, D. (1993) 'Paired Renazzo-type (CR) carbonaceous chondrites from the Sahara'. *Geochim. Cosmochim. Acta* **57**, 1587-1603.

McCoy, T.J., Keil, K., Ash, R.D., Morse, A.D., Pillinger, C.T., Wieler, R., Mayeda, T.K., Clayton, R.N., Benoit, P.H., Sears, D.W.G., Casanova, I., Lindstrom, M., Muenow, D.W., Moore, C.B. and Wilson I.E. (1993) 'Roosevelt County 075: a petrologic, chemical and isotopic study of the most un-equilibrated known H chondrite'. *Meteoritics* **28**, 681-691.

Ash R.D. (1994) 'Small spheres of influence'. *Nature* **372**, 219-220.

Connolly, H.C. Jr., Hewins, R.H., Ash, R.D., Zanda, B., Lofgren, G.E. and Bourot, Denise M. (1994) 'Carbon and the formation of reduced chondrules: and experimental investigation'. *Nature* **371**, 136-139.

Gilmour, J.D., Ash, R.D., Hutchison, R., Bridges, J.C., Lyon, I.C. and Turner, G. (1995) 'Iodine-xenon studies of Bjurböle and Parnallee using RELAX'. *Meteoritics* **30**, 405-411.

Ash, R.D. and Pillinger, C.T. (1995) 'Carbon, nitrogen and hydrogen in Saharan chondrites: The importance of weathering'. *Meteoritics* **30**, 85-92.

Gilmour, J.D., Ash, R.D., Lyon, I.C. and Turner, G. (1995) 'Continuous wave laser probe I-Xe analysis using the RELAX mass spectrometer'. Inst. Phys. Conf. Series 329 AIP Press, New York, 233-236.

Ash, R.D. and Pillinger, C.T. (1995) 'The fate of carbon in hot and cold deserts'. In: Workshop on Meteorites from Cold and Hot Deserts'. *Eds*. L. Schultz, J. Annexstad and M.E. Zolensky. *Lunar and Planetary Institute Technical Report* **95-02**, Houston, 15-17.

Ash R.D. (1996) Review of 'Chondrules and the Protoplanetary Disk'. *Meteoritics Planet. Sci.* **31**, 929.

Ash, R.D., Knott, S.F. and Turner, G. (1996) 'A 4-Gyr shock age for a Martian meteorite and implications for the cratering history of Mars'. *Nature* **380**, 57-59.

Turner, G., Knott, S.K., Ash, R.D. and Gilmour, J.D. (1997) 'Ar-Ar chronology of the Martian meteorite ALH84001: evidence for the timing of the early bombardment of Mars'. *Geochim. Cosmochim. Acta* **61**, 3835-3849.

Alexander, C.M.O'D., Russell, S.S., Arden, J.W., Ash, R.D., Grady, M.M. and Pillinger, C.T. (1998) 'C and N isotopic compositions of organic material in carbonaceous and ordinary chondrites'. *Meteoritics Planet. Sci.* **33**, 603-622.

Russell, S.S., McCoy, T.J., Jarosewich, E. and Ash R.D. (1998) 'The Burnwell, Kentucky, low-FeO chondrite fall: description, classification and origin'. *Meteoritics Planet. Sci.* **33**, 853-826.

Young, E.D., Ash, R.D., England, P. and Rumble, D. III (1999) 'Fluid flow in chondritic parent bodies: deciphering the compositions of planetesimals'. *Science* **286**, 1331-1335.

Galy, A., Young, E.D., Ash, R.D. and O'Nions, R.K. (2000) 'The formation of chondrules at high gas pressures in the early solar system'. *Science* **290**, 1751-1753.

Ash, R.D. (2001) Review of 'Origin and early evolution of solid matter in the Solar System'. *Meteoritics Planet. Sci.* **36**, 583-584.

Zhu, X., Guo, Y., O'Nions, R.K., Galy, A., Young, E.D. and Ash, R.D. (2001) 'Iron isotope homogeneity of the early solar nebula'. *Nature* **412**, 311-313.

Whitby, J., Gilmour, J.D., Turner, G., Prinz, M. and Ash, R.D. (2002) 'I-Xe dating of chondrules from the Qingzhen and Kota Kota enstatite chondrites'. *Geochim. Cosmochim. Acta* **66**, 347-359.

Young, E.D., Ash, R.D., Galy, A. and Belshaw, N.S. (2002) 'Mg isotope heterogeneity in the Allende meteorite measured by UV laser ablation-MC-ICPMS and comparisons with O isotopes'. *Geochim. Cosmochim. Acta* **66**, 683-698.

Brenan, J. M., McDonough, W. F. and Ash, R. (2005) 'An experimental study of the solubility and partitioning of iridium, osmium and gold between olivine and silicate melt'. *Earth Planet. Sci. Lett.* **237**, 855-872.

Lundstrom, C.C., Sutton, A.L., Chaussidon, M., McDonough, W.F. and Ash, R.D. (2005) 'Trace Element Partitioning Between Type B CAI melts and Melilite and Spinel'. *Geochim. Cosmochim. Acta* **70**, 3421-3435.

Walker, R.J., Brandon, A.D., Bird, J.M., Piccoli, P.M., McDonough, W.F. and Ash, R.D. (2005) '^{187}Os-^{186}Os Systematics of Os-Ir-Ru Alloy Grains from Southwestern Oregon'/ *Earth Planet Sci. Lett*. **230**, 211-226.

Connolly, H.C. Jr., Desch, S.J., Ash, R.D. and Jones, R.H. (2006) 'Transient Heating Events in the Protoplanetary Nebula'. *In: Meteorites and the Early Solar System II,*

Arizona University Press, 383-398.

Ash, R.D. (2007) Review of "The History of Meteoritics and Key Meteorite Collections". *Mineralogical Magazine* **71**, 121-122.

Walker, R.J., McDonough, W.F, Honesto, J., Chabot, N.L., McCoy, T.M, Ash, R.D. and Bellucci, J.J. (2008) Modeling Fractional Crystallization of Group IVB Iron Meteorites. *Geochim. Cosmochim. Acta*, **72,** 2198–2216

Qin K., Zhao L. Ash R.D., McDonough and Zhao R.Y. (2008) ATM-mediated transcriptional elevation of prion to copper-induced oxidative stress. *J. Biol. Chem*

Day J.M.D., Ash R.D., Yang L., Bellucci J.J., Rumble D. III, McDonough W.F, Walker R.J. and Taylor L.A (2009) Early formation of evolved asteroidal crust. *Nature*, **457,** 179-182.

b. Talks, Abstracts, and Other Professional Papers Presented

i. Invited talks

1990 Institüt fur Planetologie, Münster, Germany.

1998 Geological Society of Washington

2000 Royal Astronomical Society, London
Geochemistry group of the Mineralogical Society

2001 Recent developments in ICP-MS analysis, London.

2002 University of California, Davos, Switzerland
Goldschmidt conference

2007 Royal Astronomical Society Special Meeting in memory of Bob Hutchison

2009 Microscopy and Microanalysis Conference, Richmond, Virginia

ii. Keynote Speaker

1996 New York Astronomical Society

2000 Oxford University Teacher's Conference

iii. Abstracts

1987

R. D. Ash*, M.M. Grady, I.P. Wright and C.T. Pillinger. *Meteoritics* **22** *(1987), 319 [50th Annual Meeting of the Meteoritical Society]*. An investigation of carbon and nitrogen isotope in CO and the effects of grainsize upon combustion temperature

1988

R. D. Ash*, J.W. Arden, C.O. Alexander, M.M. Gradym I.P. Wright and C.T. Pillinger. Isotopically heavy carbon in the Allende meteorite – new or previously recognised phases? *19th Lunar and Planetary Science Conference (1988), 15-16*

I.P. Wright*, R.D. Ash, M.M. Grady, C.T. Pillinger and M. Tang. The carbon components of Murray CF *Meteoritics* **23**, 312. *[51st Annual Meeting of the Meteoritical Society]*

R. D. Ash*, J.W. Arden, M.M. Grady, I.P. Wright and C.T. Pillinger *(1988)*. Isotopically light carbon in the Allende meteorite. *Meteoritics* **23**, 255. *[51st Annual Meeting of the Meteoritical Society]*

R. D. Ash, M.M. Grady, I.P. Wright, C.T. Pillinger*, J.W. Arden, M.J. Mendelssohn and H.J. Milledge. A new form of natural diamond rich in nitrogen of unusual isotopic composition. *Proc. 38th Annual Diamond Conference (1988), 107-109.*

1989

R.D. Ash, J.W.Arden and C.T. Pillinger *(1989)*. Light nitrogen associated with SiC in Cold Bokkeveld. *Meteoritics* **24**, 248-249. *[52nd Annual Meeting of the Meteoritical Society]*

C.T. Pillinger*, S.S. Russell, R.D. Ash and J.W. Arden *(1989)* CVD diamonds and SiC. *Meteoritics* **24**, 316. *[52nd Annual Meeting of the Meteoritical Society]*.

J.W. Arden, R. D. Ash*, M.M. Grady, I.P. Wright and C.T. Pillinger. Further studies on the composition of interstellar grains in Allende: 1. diamonds. *20th Lunar and Planetary Science Conference (1989), 21-22*

R. D. Ash*, J.W. Arden, M.M. Grady, I.P. Wright and C.T. Pillinger. Further studies on the composition of interstellar grains in Allende: 2. carbon associated with spinels. *20th Lunar and Planetary Science Conference (1989), 25-26*

1990

S.S. Russell*, R. D. Ash, C.T. Pillinger and J.W. Arden *(1990)*. Nitrogen in diamond from primitive meteorites. *Meteoritics* **25**, 402-403. *[53rd Annual Meeting of the Meteoritical Society]*

S.S. Russell*, R. D. Ash and C.T. Pillinger. On the existence of occluded isotopically light carbon in Allende. *21st Lunar and Planetary Science Conference (1990), 1049-1050*

1991

R.D. Ash*, M.M. Grady, A.D. Morse and C.T. Pillinger *(1991)*. Renazzo-like chondrites: a light element stable isotope study. *Meteoritics* **26**, 314. *[54th Annual Meeting of the Meteoritical Society]*

M.M. Grady*, R.D. Ash, A.D. Morse and C.T. Pillinger *(1991)*. Acfer 182: an unusual chondrite with affilinities to ALH85085. *Meteoritics* **26**, 339-340. *[54th Annual Meeting of the Meteoritical Society]*

R. Hutchison*, S.J.B. Reed, R.D. Ash and C.T. Pillinger *(1991)*. Adrar 003: a new extraordinarily unequilibrated ordinary chondrite. *Meteoritics* **26**, 314. *[54th Annual Meeting of the Meteoritical Society]*

S.S. Russell*, R.D. Ash, C.T. Pillinger and J.W. Arden *(1991)*. Meteoritic silicon carbide – separate rain populations and multiple components revealed by stepped combustion. *Meteoritics* **26**, 390. *[54th Annual Meeting of the Meteoritical Society]*

R.D. Ash*, S.S. Russell, I.P. Wright, C.T. Pillinger and J.W. Arden. Minor high temperature components in carbonaceous chondrites confirmed by stepped combustion using a new sensitive mass spectrometer.*22nd Lunar and Planetary Science Conference (1991), 35-36*

M.M. Grady*, R.D. Ash and C.T. Pillinger. EET87770: a light element stable isotope study of a new Renazzo-like carbonaceous chondrite. *22nd Lunar and Planetary Science Conference (1991), 471-472*.

C.T. Pillinger*, R. D. Ash, S.S. Russell and J.W. Arden. The stability, trace element and isotopic composition of diamond and diamond-like carbon produced in various low temperature-low pressure regimes. *Proc. 41st Annual Diamond Conference (1991), 8.1-8.4*.

1992

R.D. Ash* and C.T. Pillinger *(1992)*. Carbon and nitrogen in Roosevelt County 075: an unusual organic-rich UOC. *Meteoritics* **27**, 198-199. *[55th Annual Meeting of the Meteoritical Society]*

R.D. Ash and C.T. Pillinger *(1992)*. The effects of Saharan weathering on light element contents of various primitive chondrites. *Meteoritics* **27**, 199. *[55th Annual Meeting of the Meteoritical Society]*

R. D. Ash* and C.T. Pillinger. Carbon and Nitrogen in CR chondrites; evidence for a single parent body. *23rd Lunar and Planetary Science Conference (1992), 41-42*

A.V. Fisenko, S.S. Russell, R. D. Ash, L.F. Semjenova, A.B. Verchovsky and C.T. Pillinger Isotopic composition of carbon and nitrogen in the diamonds from the

unequilibrated ordinary chondrite Krymka LL3.0. *23rd Lunar and Planetary Science Conference (1992), 365-366*

1993

R.D. Ash*, A.D. Morse and C.T. Pillinger *(1993)*. The survival of presolar organic material in CR chondrites? *Meteoritics* **28**, 318-319. *[56th Annual Meeting of the Meteoritical Society]*

R. D. Ash and C.T. Pillinger. Carbon in weathered ordinary chondrites from Roosevelt County. *24th Lunar and Planetary Science Conference (1993), 43-44*

J.M.Saxton, R. Burgess* R. D. Ash, F.M. Stuart and G. Turner. Carbon in weathered ordinary chondrites from Roosevelt County. *Terra Nova* **5** *(1993), 467*

1994

R.D. Ash *(1994)*. Barium sulphate in a Saharan CV chondrite. *Meteoritics* **29**, 439. *[57th Annual Meeting of the Meteoritical Society]*

R.D. Ash , J.D. Gilmour, G. Turner, J.C. Bridges and R. Hutchison *(1994)*. The chronology of ordinary chondrites by laser Ar-Ar and I-Xe. *Meteoritics* **29**, 439-440. *[57th Annual Meeting of the Meteoritical Society]*

J.D. Gilmour, R.D. Ash, I.C. Lyon, W.A. Johnston, R. Hutchison, J.C. Bridges and G. Turner *(1994)*. Iodine-xenon studies and the RELAX mass spectrometer.*), Meteoritics* **29**, 468-469. *[57th Annual Meeting of the Meteoritical Society]*

R.D. Ash*, J.D. Gilmour, G. Turner, J.C. Bridges and R. Hutchison *(1994)*. Dating ordinary chondrite inclusions by laser ^{39}Ar-^{40}Ar and laser/RIMS I-Xe. *USGS Circular* **1107**, 14. *[ICOG 8]*

R. D. Ash* and C.T. Pillinger. The fate of meteoritic carbon in hot and cold deserts. *NASA Workshop on 'Meteorites from Hot and Cold Deserts' Nordlingen, Germany, July 1994*

J.D. Gilmour, R.D. Ash and G. Turner, *(1994) Iodine*-xenon studies of ordinary chondrites using the RELAX mass spectrometer. *Min . Mag.* **58A**, 331-332.

R. D. Ash* and S.S. Russell. Carbon, chondrules and CAIs. *NASA Workshop on 'Chondrules and the protoplanetary disk' Albuquerque, New Mexico, USA, October 1994.*

H.C. Connolly Jr.*, R.H. Hewins, R. D. Ash, G.E. Lofgen and B. Zanda. On the possible role of elemental carbon in the formation of reduced chondrules. *25th Lunar and Planetary Science Conference (1994), 279-280*

1995

R.D. Ash , S.K. Knott and G. Turner* *(1995)*. Evidence for the timing of the early bombardment of Mars. *Meteoritics* **29**, 483. *[58th Annual Meeting of the Meteoritical Society]*

R.D. Ash , J.D. Gilmour, J. Whitby, G. Turner, J.C. Bridges and R. Hutchison *(1995)*. The history of the Parnallee meteorite as revealed by iodine-xenon dating. *Meteoritics* **29**, 483-484. *[58th Annual Meeting of the Meteoritical Society]*

J.D. Gilmour, J.A. Whitby, R.D. Ash, and G. Turner *(1995)*. Xenon isotopes in irradiated and unirradiated samples of Allan Hills 84001. *Meteoritics* **29**, 510-511. *[58th Annual Meeting of the Meteoritical Society]*

J.A. Whitby, J.D. Gilmour , R.D. Ash and G. Turner *(1995)*. Iodine-xenon dating of small chondrules from the Bjurbole meteorite using RELAX. *Meteoritics* **29**, 599-600. *[58th Annual Meeting of the Meteoritical Society]*

S.K. Knott, R.D. Ash , and G. Turner. ^{40}Ar-^{39}Ar dating of ALH84001: evidence for the early bombardment of Mars. *26th Lunar and Planetary Science Conference (1995), 765-766.*

1996

C. M. O'D. Alexander , R.D. Ash, M.M. Grady, S.S. Russell and C.T. Pillinger. The C and N isotopic compositions of insoluble organic matter in chondrites. *59th Annual Meeting of the Meteoritical Society (1996), A6/*

R.D. Ash, S.S. Russell, J. Newton, J.W. Arden and C.T. Pillinger. CJ a "presolar" grain formed in the laboratory. *59th Annual Meeting of the Meteoritical Society (1996), A10*

R.D. Ash and C.T. Pillinger. A review of organic material in CR chondrites. *59th Annual Meeting of the Meteoritical Society (1996), A10*

1997

R. D. Ash, D. Rumble III, G. J. MacPherson and C. M. O'D. Alexander. Oxygen Isotopes in Bjurbole and Tieschitz Chondrules by Ultraviolet Laser Probe. *60th Annual Meeting of the Meteoritical Society (1997), Abstract #5282.*

D. Rumble III, J. Farquhar and R. D. Ash. In Situ Microanalysis of Oxygen Isotopes Using Online Ultraviolet Laser Fluorination. *60th Annual Meeting of the Meteoritical Society (1997), Abstract #5266*.

J. A. Whitby, R. D. Ash, J. D. Gilmour, M. Prinz and G. Turner. Iodine-Xenon Dating of Chondrules and Matrix from the Qingzhen and Kota-Kota EH3 Chondrites. *60th Annual Meeting of the Meteoritical Society (1997), Abstract #5209.*

R. D. Ash, J. D. Gilmour, J. Whitby, M. Prinz and G. Turner. I-Xe Dating of Chondrules from the Qingzhen Unequilibrated Enstatite Chondrite. *28th Lunar and Planetary Science Conference (1997), Abstract #1778.*

1998

R. D. Ash, H. C. Connolly Jr., C. M. O'D. Alexander, G. J. MacPherson and D. Rumble III. Oxygen-Isotopic Ratios of Natural and Synthetic Chondrules: Evidence for In Situ Reduction by Carbon. *61st Annual Meeting of the Meteoritical Society (1998), Abstract #5277.*

G. J. MacPherson, R. D. Ash and D. Rumble III. In Situ Laser Microanalysis of Oxygen Isotopes in Ureilites. *61st Annual Meeting of the Meteoritical Society (1998), Abstract #5262.*

S. S. Russell, I. A. Franchi, A. B. Verchovsky, R. D. Ash and C. T. Pillinger. Carbon, Nitrogen, and Noble Gases in a Vigarano Calcium-Aluminum-rich Inclusion: Evidence for Silicon Carbide in Refractory Inclusions. *61st Annual Meeting of the Meteoritical Society (1998), Abstract #5239*.

R. D. Ash, D. Rumble III, C. M. O'D. Alexander and G. J MacPherson. Oxygen Isotopes in Isolated Chondrules from the Tieschitz Ordinary Chondrite: Initial Compositions and Differential Parent Body Alteration. *29th Lunar and Planetary Science Conference (1998), Abstract #1854*.

1999

R. D. Ash, E. D. Young, C. M. O'D. Alexander, D. Rumble III and G. J. MacPherson. Oxygen Isotope Systematics in Allende Chondrules. *30th Lunar and Planetary Science Conference (1999), Abstract #1836*.

2000

R. D. Ash, G. J. MacPherson and D. Rumble III. Oxygen Isotopes, Ureilite Genesis, and the Geology of Asteroids. *63rd Annual Meeting of the Meteoritical Society (2000), Abstract #5288.*

R. D. Ash, A. Galy, E. D. Young and R. K. O'Nions. Correlated Oxygen and Magnesium Isotopes in Allende Chondrules. *63rd Annual Meeting of the Meteoritical Society (2000), Abstract #5269*.

E. D. Young, R. D. Ash, S. S. Russell and P. A. Bland. Oxygen Isotopes in CV Carbonaceous Chondrites: The Significance of the Carbonaceous Chondrite Anhydrous Mineral Line. *63rd Annual Meeting of the Meteoritical Society (2000), Abstract #5258.*

R. D. Ash and E. D. Young. Clarity and Confusion: The History of Allende Chondrules as Evinced by Oxygen Isotopes. *31st Lunar and Planetary Science Conference (2000), Abstract #1881.*

E. D. Young, S. S. Russell and R. D. Ash. Ultraviolet Laser Ablation Measurements of Oxygen Isotope Ratios in a Leoville Compact Type a CAI. *31st Lunar and Planetary Science Conference (2000), Abstract #1837.*

E. D. Young and R. D. Ash. The Hydrology of Icy Planetesimals Inferred from Carbonaceous Chondrite Oxygen Isotope Ratios. *31st Lunar and Planetary Science Conference (2000), Abstract #1658.*

A. Galy, E. D. Young, R. D. Ash and R. K. O'Nions. High Precision Magnesium Isotopic Composition of Allende Material: A Multiple Collector Inductively Coupled Mass Spectrometry Study. *31st Lunar and Planetary Science Conference (2000), Abstract #1193*.

2001

S. S. Russell, T. E. Jeffries, R. D. Ash, M. Gounelle and E. D. Young. Rare Earth Element Abundances and Oxygen Isotope Compositions in CV3 CAIs: Clues to Their History. *64th Annual Meeting of the Meteoritical Society (2001), Abstract #5406.*

E. D. Young, R. D. Ash, A. Galy and N. S. Belshaw. Magnesium Isotope Ratio Heterogeneity in Allende Chondrules Determined by UV Laser Ablation and Multicollector ICPMS. *32nd Lunar and Planetary Science Conference (2001), Abstract #1337*.

2002

R. D. Ash, S. S. Russell, N. C. Belshaw, E. D. Young and M. Gounelle. Mg Isotopes in Melilite, Fassaite and Spinels in CAIs: Evidence for Evaporation, Equilibration and Late Stage Alteration. *33rd Lunar and Planetary Science Conference (2002), Abstract #2063.*

X. K. Zhu, Y. Guo, R. K. O'Nions, A. Galy, E. D. Young and R. D. Ash. Iron Isotope Cosmochemistry: High-Precision Isotope Ratio Measurement Using MC-ICPMS. *64th Annual Meeting of the Meteoritical Society (2001), Abstract #5449.*

2003

W. F. McDonough, F-Z. Teng, P. B. Tomascak, R. D. Ash, J. N. Grossman and R. L. Rudnick. Lithium Isotopic Composition of Chondritic Meteorites. *34th Lunar and Planetary Science Conference (2003), Abstract #1931*.

R. D. Ash, F. W. McDonough and D. Rumble III. Rare Earth Elements and Oxygen Isotopes in Allende Chondrules as Evidence for CAI Mixing in Chondrule Precursors. *34th Lunar and Planetary Science Conference (2003), Abstract #1907.*

M. Chaussidon, F. Robert, S. S. Russell, M. Gounelle and R. D. Ash. Variations of Apparent 10Be/9Be Ratios in Leoville MRS-06 Type B1 CAI: Constraints on the Origin of 10Be and 26Al. *34th Lunar and Planetary Science Conference (2003), Abstract #1347*.

2005

R. D. Ash, M. Lipella, W. F. McDonough and R. L. Rudnick. Nb-Ta Ratios in the Allende CV Chondrite: The Relationships Between Calcium-Aluminium-rich Inclusions, Chondrules and Matrix. *36th Lunar and Planetary Science Conference (2005), Abstract #2168.*

H. C. Watson, E. B. Watson, W. F. McDonough and R. D. Ash. Siderophile Element Profile Measurements in Iron Meteorites Using Laser Ablation ICP-MS. *36th Lunar and Planetary Science Conference (2005), Abstract #2141*.

C. M. Corrigan, D. Rumble III, T. J. McCoy, R. D. Ash, W. F. McDonough, J. Honesto and R. J. Walker. The Tishomingo Iron: Relationship to IVB Irons, CR Clan Chondrites, and Angrites and Implications for the Origin of Volatile-depleted Iron Meteorites. *36th Lunar and Planetary Science Conference (2005), Abstract #2062*

J. Honesto, W. F. McDonough, R. J. Walker, T. J. McCoy and R. D. Ash. ^{187}Re-^{187}Os Isotopic and Highly Siderophile Elements Systematics of Group IVB Irons. *36th Lunar and Planetary Science Conference (2005), Abstract #1929.*

R. J. Walker, T. J. McCoy, R. F. Schulte, W. F. McDonough and R. D. Ash. ^{187}Re-^{187}Os, ^{190}Pt-^{186}Os Isotopic and Highly Siderophile Element Systematics of Group IVA Irons. *36th Lunar and Planetary Science Conference (2005), Abstract #1313*.

2006

W. F. McDonough, F.-Z. Teng, R. L. Rudnick and R. D. Ash. Lithium Isotopic Analyses of Chondrites and Chondrules. *37th Lunar and Planetary Science Conference (2006), Abstract #2416*).

J. Honesto, W. F. McDonough, R. J. Walker, C. M. Corrigan, T. J. McCoy, N. L. Chabot and R. D. Ash. ^{187}Re-^{187}Os Isotopic and Highly Siderophile Element Systematics of Group IVB Irons, and Ungrouped Irons Chinga, Tishomingo and Willow Grove. *37th Lunar and Planetary Science Conference (2006), Abstract #1374*

2007

T. J. McCoy*, C. M. Corrigan, J. I. Goldstein, J. Yang, R. J. Walker, R. D. Ash, W. F. McDonough and N. L. Chabot. Low-Ni IVA Irons Depleted in Volatiles by Impact Reheating? *70th Annual Meeting of the Meteoritical Society (2007), Abstract #5044.*

R. D. Ash, M. V. Luong, R. J. Walker, W. F. McDonough and T. J. McCoy. Trace Element Fractionation in Kamacite and Taenite in IVA Irons. *38th Lunar and Planetary Science Conference (2007), Abstract #2383*

J. J. Bellucci, R. D. Ash, W. F. McDonough and R. J. Walker. Standard Addition Analysis of Rh and Au in IVB Iron Meteorites. *38th Lunar and Planetary Science Conference (2007), Abstract #2013.*

J. N. Grossman*, C. M. O'D. Alexander, R. D. Ash and W. F. McDonough. Volatile Element Abundances in Chondrules Revisited: An LA-ICP-MS Study of QUE 97008 (LL3.05). *38th Lunar and Planetary Science Conference (2007), Abstract #2000.*

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2008

S. W. Lehner*, P. R. Buseck, W. F. McDonough and R. D. Ash. Siderophile Element Distribution in Metal-Sulfide Nodules from EH3 Sahara 97072. *71st Annual Meeting of the Meteoritical Society (2008), Abstract #5275.*

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R.D.Ash*, J. M. D. Day, W. F. McDonough, J. Bellucci, D. Rumble III, Y. Liu and L. A. Taylor. Petrogenesis of the Differentiated Achondrite GRA 06129: Trace Elements and Chronology. *39th Lunar and Planetary Science Conference (2008), Abstract #2271.*

T. J. McCoy, A. E. Marquardt, E. P. Vicenzi, R. D. Ash and J. T.Wasson. Meteoritic Metal Beads from the Havana, Illinois, Hopewell Mounds: A Source in Minnesota and Implications for Trade and Manufacture Wasson. *39th Lunar and Planetary Science Conference (2008), Abstract #1984.*

H. C. Connolly Jr*, G. R. Huss, K. Nagashima, M. K. Weisberg, R. D. Ash, D. S. Ebel, D. L. Schrader and D. S. Lauretta. Oxygen Isotopes and the Nature and Origins of Type-II Chondrules in CR2 Chondrites. *39th Lunar and Planetary Science Conference (2008), Abstract #1675.*

2009

R.D. Ash, C.A. Goodrich, W.F. McDonough and J.A. van Orman. Metal in ureilites: siderophile elements from LA-ICP-MS. *40th Lunar and Planetary Science Conference (2009), Abstract #1675.*

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J.M.D. Day, J.M. Sunshine, R,.D. Ash, R.J. Walker, Y. Liu, D. Rumble III, L.A. Taylor and W.F. McDonough. Making crust in the asteroid belt: evidence from GRA06128/9 and brachinites. *40th Lunar and Planetary Science Conference (2009), Abstract #1675.*

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iv. Editorships

Associate Editor, *Meteoritical Bulletin*

v. Reviewing Activities for Journals and Other Learned Publications

Earth and Planetary Science Letters
Geochimica et Cosmochimica Acta
Meteoritics and Planetary Science
Nature

3. TEACHING, MENTORING, AND ADVISING

i. Open University

Taught Open University Summer School Science Foundation course (S101) and Geology Field and Laboratory courses (S236) over five years.

ii. Manchester University

Taught part of the third year 'Planetary Geology' course covering Meteoritics, Isotope Cosmochemistry, Nucleosynthesis and Presolar Grains.
Supervised - Meteorite Mineralogy/Petrology practical classes.
Undergraduate tutor and undergraduate geochemistry project supervisor.

iii. Oxford University

Geology Lecturer - U3A

4. SERVICE

a. Professional

i. Membership of Professional Bodies

Meteoritical Society
Geochemical Society
European Association of Geochemists

ii. *Oxford University*

Cosmochemistry Representative, Oxford University Teachers' Conference.
Reviewer, AAAS *Science Books and Films*
Meteorite/Cosmochemistry Consultant - *Scienceline* Educational Information Service
Interviewed - Central TV news on "Dangers of Asteroid Impact"

iii. *Smithsonian/Carnegie Institution*

Volunteer - CASE Summer Programme (teaching teachers about science)
Interviewed - Aquila Magazine for young journalist competition
Contributor - 'Kids in the Hall of Planet Earth' website

iv. *American Museum of Natural History*

Design/Content Committee - Hall of Planet Earth Exhibition
Interviews and Commentary - McKay *et al.* 'Life on Mars' coverage on CNN, CNN International, CBS, NBC, C-NBC, Fox TV, New York News, Channel 11, Los Angeles Times

v. *Committees and Service*

Committee for the planning of the Hall of Planet Earth (American Museum of Natural History)
Liaison Committee for the Hall of Planet Earth/Hall of the Universe (Hayden Planetarium)
Martian Meteorite Working Group (NASA/NSF)
Stephen E. Dwornik Prize Award Committee at 30th Lunar & Planetary Science Conference
Stephen E. Dwornik Prize Award Committee at 39th Lunar & Planetary Science Conference
Department of Geology Environmental Safety Compliance Officer
Member Meteorite Nomenclature Committee

b. Campus

i. *Departmental*

2004-present DES Compliance Officer

ii. *College*

iii. *University*

c. Community, State, National

d. Service Awards and Honors