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Anne M. Hofmeister

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EDUCATION

California Institute of Technology, Pasadena, CA (Ph.D. in Geology, 1984; M.S., 1981)

University of Illinois, Urbana, IL (M.S. in Physics, 1978)

Harvey Mudd College, Claremont, CA (B.S., Highest Honors in Physics and Literature, 1976)

HONORS

Fellow, Mineralogical Society of America, 1997

David and Lucile Packard Fellowship in Science and Engineering, 1989-1994

Humboldt Fellowship, 1992-1993

H.O. Wood Postdoctoral Fellowship at the Geophysical Laboratory, 1984-1985

Honorable mention, Geological Society of Washington's best paper competition, 1984

Fellowship in Applied Physics at Cal Tech, 1978-1979

Bausch and Lomb Science Award, 1972

EDITORSHIPS AND OFFICES HELD

Editor, *American Mineralogist*, 1997-2001

Associate Editor, *American Mineralogist*, 1995-1997

Associate Editor, *Journal of Geophysical Research*, 1992-1994

Councillor, Mineralogical Society of America, 1993-1995

EMPLOYMENT

July 1999-present *Research Professor, Dept. of Earth and Planetary Science, Washington U.*

July 1994-July 1999 *Associate Research Professor, Dept. of Earth and Planetary Science, Washington University*

July 1992-June 1994 *Associate Professor, Dept. of Geology, U. C. Davis*

July 1988-June 1992 *Assistant Professor, Dept. of Geology, U. C. Davis*

Oct. 1987-June 1988 *Unemployed - maternity leave*

Oct. 1983-Oct. 1987 *Postdoctoral Fellow/Research Associate at the Geophysical Laboratory, Carnegie Institution of Washington*

1979-1983 *Graduate Research Assistant at Cal Tech in Geology*

1978-1979 *Graduate Fellow at Cal Tech in Applied Physics*

Summer, 1978 *Physicist at Hughes Aircraft Research Center, Malibu*

Fall, 1977 *Graduate Research Assistant at University of Illinois*

1976-1978 *Graduate Teaching Assistant at University of Illinois*

RESEARCH INTERESTS

- Measurement of thermal diffusivity using a laser-flash apparatus
- Use of *in situ* spectroscopy to deduce transport, thermodynamic, and elastic properties as functions of pressure and temperature, and to probe microscopic behavior
- Application of the above to geologic processes, mantle petrology, and the Earth's thermal state
- Astrophysics of dust and observational (IR) astronomy
- Radiative transfer

FUNDING

- 2008-2010 "Collaborative Research: First principles calculations and measurements of thermal diffusivity for application to the Earth's Interior " with J.J. Dong
NSF-CSEDI \$187,362
- 2008-2009 "Probing the Effect of Volatiles and Temperature on Thermal Diffusivity: Implications for Upper Mantle and Lithospheric Processes" NSF-EAR \$199,201
- 2006-2009 "Collaborative research: Dust Formation Around Carbon Stars: Astromineralogy and the Condensation Sequence" with A.K. Speck NSF-AST \$45,715
- 2005-2008 "Collaborative research: Measurement of transport properties of silicate melts with application to crustal anatexis" with A.G. Whittington NSF-PG \$66,737
- 2005-2009 "Distinguishing grain-size and temperature effects on the infrared fingerprints of astrominerals: a quantitative laboratory approach" NASA-APRA \$273,000
- 2002-2005 "Collaborative research: The influence of thermal conductivity on stabilization and feedback in mantle convection" with D.A. Yuen NSF-CSEDI \$221,000
- 2002-2004 "Acquisition of a laser-flash apparatus for measurement of thermal diffusivity to 2000 C" NSF \$130,260
- 2002-2003 "Thermal conductivity of quartz and feldspars: application to continental heat flow" NSF \$30,800
- 1998-2001 "POWRE: Construction of an IR spectroscopic data base for direct comparison with astronomical observations of stardust. NSF-Astronomy \$74,061
- 1997-2000 "Collaborative research: Laboratory, Seismological and Geodynamical study of the transition zone within and near subducting slabs" NSF \$199,779
- 1995-1997 "Upgrade of software and computer for a FTIR spectrometer" NSF \$16,490
- 1992-1995 "Thermodynamic properties of perovskites and MgSiO₃ polymorphs from infrared spectroscopy" NSF \$158,000
- 1992-1995 "REU amendment" NSF \$2,640
- 1992-1993 Research Fellowship Alexander Von Humboldt Foundation DM 24,000
- 1992 Support for disadvantaged high school students ACS- SEED \$4,700
- 1991 "Thermodynamic properties of mantle minerals" NSF: U.S.- France \$2,050
- 1990 "REU amendment" NSF \$2,640
- 1989-1994 "Fellowship" The David and Lucile Packard Foundation \$500,000
- 1989-1990 "Spectroscopic determination of the thermodynamic properties of minerals as a function of pressure" NSF \$84,981
- 1989 "Acquisition of a Fourier Transform Infrared Spectrometer" NSF \$78,272
- 1985-1987 "Spectroscopic determination of the thermochemical properties of mantle-minerals as a function of pressure" NSF \$73,000

INVITED LECTURES

1980-89 Case Western Reserve; Owens-Corning Fiberglass; Dept. Terrestrial Magnetism, Geophysical Laboratory; Harvey Mudd College; U. C. Davis; U. C. Santa Cruz
1990-99 ETH-Zürich; Bayerisches Geoinstitut; Mineralogisches Institut der Universität Würzburg; Institut de Globe de Physique Paris; Max Planck Institut für Chemie im Mainz; Technische Universität Berlin; CalTech; Westfälische Wilhelms-Universität Münster; Lawrence Livermore National Laboratory; Washington University; University of Minnesota; Notre Dame; St. Louis University; Geophysical Laboratory
2000 Princeton; University of Minnesota; University of Missouri-Columbia
2002 University College London (Astronomy); University of Illinois Chicago Circle
2003 Umbgrove Lecturer at Universiteit Utrecht, The Netherlands; Keynote speaker at Plumes IV Penrose Conference, Iceland; Washington University
2004 University of Minnesota; Ohio State University; Mineralogical Association of Canada short course at Western Ontario
2005 Cardiff University; University College London; Brookhaven National Laboratory
2006 High Pressure Synchrotron Workshop at Argonne National Laboratory
2007 Vlab Workshop at Minnesota Supercomputing Institute
2008 International Workshop on High Pressure Science and Technology at Schloss Ringberg, Germany; Universität München; Symposium on Interdisciplinary Constraints on Solid Earth Dynamics from the Crust to the Core at Elm, Switzerland; Universität Wien (Geology); Universität Wien (Astronomy); Universität Salzburg; University of Illinois, Keynote speaker at International Workshop on Transport Properties in the Lower Mantle, Yunishigawa, Tochigi, Japan; Tokyo Institute of Technology

PROFESSIONAL SOCIETIES

American Geophysical Union
Mineralogical Society of America
American Astronomical Society

STUDENTS SUPERVISED

Rand B. Schaal, Ph.D., U.C. Davis, 1991
Thomas E. Young, M.S., U.C. Davis, 1992 (joint with H.W. Green II)
Brian P. McAloon, M.S., U.C. Davis, 1993
Ren Lu, Ph.D., U.C. Davis, 1994
Paul Geisting, M.A., Washington U., 2002
Joy Branlund, Ph.D., Washington U., 2008

COMMITTEES

U. C. Davis Regents Lectureship committee, 1989-1992
Mineralogical Society of America (MSA) Committee on Research Grants, 1991
MSA Nominating Committee, 1992
Chair, MSA Award Committee, 1993 and 1995
University of California President's Postdoctoral Fellowship Program Review committee, 1993
Chair, MSA Mineralogy/Petrology Grant Committee, 1994
University of California President's Postdoctoral Fellows Applicant Evaluation committee, 1994
U. C. Davis Ad Hoc Promotion Committee, 1994
Study of the Earth's Deep Interior Committee, American Geophysical Union, 1998-2002

MSA Committee on Short Courses, 2004-2006 (Chair in 2006)

PERSONAL

Divorced, three children (ages 24, 21, and 14).

Hobbies: master's swimming and home renovation

BIBLIOGRAPHY: PAPERS

- 1 1983 Hofmeister, A. M.: Effect of a Hadean terrestrial magma ocean on crust and mantle evolution. *Journal Geophysical Research* 88, 4963-4983.
- 2 1983 Hofmeister, A. M. and G.R. Rossman, Color in Feldspar: in *Feldspar Mineralogy, 2nd Edition, Reviews of Mineralogy Vol 2*, P.H. Ribbe, Ed. (Min. Soc. Amer.), p. 271-280. [Invited]
- 3 1984 Hofmeister, A. M. and G.R. Rossman: Determination of Fe³⁺ and Fe²⁺ concentrations in feldspar by optical and EPR spectroscopy. *Physics and Chemistry of Minerals* 11, 213-224.
- 4 1985 Hofmeister, A. M. and G.R. Rossman: A spectroscopic study of irradiative coloring of Amazonite: structurally hydrous, Pb-bearing feldspar. *American Mineralogist* 70, 794-804.
- 5 1985 Hofmeister, A. M. and G.R. Rossman: Exsolution of metallic copper from Lake County Laboradorite. *Geology* 13, 644-647.
- 6 1985 Hofmeister, A. M. and G.R. Rossman: The inhibiting role of water in irradiative coloring of smoky feldspar, *Physics and Chemistry of Minerals* 12, 324-332.
- 7 1986 Hofmeister, A. M. and G.R. Rossman: A spectroscopic study of blue radiation coloring in plagioclase. *American Mineralogist* 71, 95-98.
- 8 1986 Finger, L.W., R. M. Hazen, and A. M. Hofmeister: High-pressure crystal chemistry of spinel (MgAl₂O₄) and magnetite (Fe₃O₄) : comparisons with silicate spinels. *Physics and Chemistry of Minerals* 13, 215-220.
- 9 1987 Hofmeister, A. M., T.C. Hoering, and D. Virgo: Vibrational spectroscopy of beryllium aluminosilicates: heat capacity calculations from band assignments. *Physics and Chemistry of Minerals* 14, p. 205-224.
- 10 1987 Hofmeister, A. M.: Single-crystal absorption and reflection infrared spectroscopy of forsterite and fayalite. *Physics and Chemistry of Minerals* 14, 499-513.
- 11 1987 Hofmeister, A. M.: Book Review of *Chemical bonding and spectroscopy in mineral chemistry* by F. J. Berry and D. J. Vaughan (eds.) *Chemical Geology* 63, p. 355-356. [Invited]
- 12 1987 Hazen, R.M., T. C. Hoering, and A.M. Hofmeister: Compressibility and high-pressure phase transition of a metalloporphyrin: (5,10,15,20- tetraphenyl-21H, 23H-porphinato) Cobalt (II). *Journal of Physical Chemistry* 91, 5042-5045.
- 13 1988 McMillan, P. and A. M. Hofmeister: Infrared and Raman spectroscopy of minerals, in *Spectroscopy in Mineralogy and Geology, Reviews of Mineralogy Vol. 18* p. 99-159. [Invited]
- 14 1989 Hofmeister, A. M., J. Xu, H. K. Mao, P. M. Bell, and T. C. Hoering: Thermodynamics of Fe-Mg olivines at mantle pressures: Mid- and far-infrared spectroscopy at pressure. *American Mineralogist* 74, 281-306.
- 15 1990 Hofmeister, A. M. J. Xu, and S. Akimoto: Infrared spectroscopy of synthetic and natural stishovite. *American Mineralogist* 75, 951-955.

- 16 1990 Hofmeister, A. M., J. Horigan, and J. A. Campbell: Infrared spectra of GeO₂ with the rutile structure and prediction of inactive modes for isostructural compounds. *American Mineralogist* 75, 1238-1248.
- 17 1991 Hofmeister, A. M. and A. Chopelas: Vibrational spectra of end-member silicate garnets. *Physics and Chemistry of Minerals* 17, 503-526.
- 18 1991 Criss, R. E. and A. M. Hofmeister: Application of fluids dynamics principles in tilted permeable media to terrestrial hydrothermal systems. *Geophysical Research Letters* 18, 199-202.
- 19 1991 Hofmeister, A. M. and A. Chopelas: Thermodynamic properties of pyrope and grossular from vibrational spectra. *American Mineralogist (J. B. Thompson issue)* 76, 880-891.
- 20 1991 Hofmeister, A. M.: Vibrational spectroscopy of minerals at pressure: application to the mantle. *GSA Today* 1, 117-119,122. [Invited]
- 21 1991 Hofmeister, A. M.: Calculation of bulk moduli and their pressure derivatives from vibrational frequencies and mode Gruneisen parameters: Solids with high symmetry or one nearest-neighbor distance. *Journal of Geophysical Research* 96, 16181-16203.
- 22 1991 Hofmeister, A. M. and K. Billips: Comparison of infrared reflectance spectra of KXF₃ perovskites. *Spectrochim. Acta* 47a, 1607-1617.
- 23 1991 Hofmeister, A. M.: Pressure derivatives of the bulk modulus. *Journal of Geophysical Research*, 96, 21893-21908.
- 24 1991 Hofmeister, A. M.: Comment on "Infrared spectroscopy of the polymorphic series (enstatite, ilmenite, and perovskite) of MgSiO₃, MgGeO₃, and MnGeO₃" by M. Madon and G. D. Price. *Journal of Geophysical Research*, 96, 21959-21964.
- 25 1991 Chopelas, A. and A. M. Hofmeister: Vibrational spectroscopy of aluminate spinels at 1 atm and of MgAl₂O₄ to over 200 kbar. *Physics and Chemistry of Minerals*, 18, 279-293.
- 26 1992 Kubiki, J., R.J. Hemley, and A.M. Hofmeister: Raman and infrared study of pressure-induced structural changes in MgSiO₃, CaMgSi₂O₆, and CaSiO₃ glasses. *American Mineralogist*, 77., 258-269.
- 27 1992 Hofmeister, A. M. and E. Ito: Thermodynamic properties of MgSiO₃ ilmenite from vibrational spectra. *Physics and Chemistry of Minerals* 18, 423-432.
- 28 1992 Hofmeister, A. M. and K. R. Campbell: Infrared spectroscopy of yttrium aluminum, yttrium gallium, and yttrium iron garnets. *Journal of Applied Physics* 72, 638-646.
- 29 1992 Hofmeister, A. M.: Book review of " The incomplete guide to the art of discovery" by Jack E. Oliver. *GSA Today* . [Invited]
- 30 1992 Hofmeister, A. M.: Reply to Comment on "The pressure derivatives of the bulk modulus" by R. Jeanloz. *Journal of Geophysical Research* 97, 15275.
- 31 1992 Hofmeister, A. M., T. P. Rose, T. C. Hoering, and I. Kushiro: Infrared spectroscopy of natural, synthetic, and ¹⁸O substituted α-tridymite: structural implications. *Journal of Physical Chemistry* 96, 10213-10218.
- 32 1993 Young, T. E., H. W. Green, A. M. Hofmeister, and D. Walker: Infrared spectroscopic investigation of OH in β-(Mg,Fe)₂SiO₄ and coexisting olivine: implications for mantle evolutions and dynamics. *Physics and Chemistry of Minerals* 19, 409-422.
- 33 1993 Hofmeister, A. M.: IR reflectance spectra of natural ilmenite: comparison with isostructural compounds and calculation of thermodynamic properties. *European Journal of Mineralogy* 5, 281-295.

- 34 1993 Hofmeister, A. M.: Interatomic Potentials Calculated from Equations of State: Limitation of Finite Strain to Moderate K'. *Geophys. Res. Lett.* 20, 635-638.
- 35 1993 Lu, R., K. D. Jackson, and A. M. Hofmeister: Thin-film infrared spectra from solid solutions of spessartine and yttrium aluminum garnet. *The Canadian Mineralogist* 31, 381-390.
- 36 1993 McAloon, B. P. and A. M. Hofmeister: Symmetry of birefringent garnets from infrared spectroscopy. *American Mineralogist* 78, 957-967.
- 37 1994 Lu, R., A.M. Hofmeister, and Y. Wang: Thermodynamic properties of ferro-magnesium silicate perovskites from vibrational spectroscopy. *Journal of Geophysical Research* 99, 11795-11804
- 38 1994 Lu, R. and A. M. Hofmeister: Infrared spectroscopy of CaGeO₃ perovskite to 24 GPa and thermodynamic implications. *Physics and Chemistry of Minerals*, 78-84.
- 39 1994 Gehring, A. U. and A. M. Hofmeister: The transformation of lepidocrocite during heating: a magnetic and spectroscopic study. *Clays and Clay Minerals* 42, 409-415.
- 40 1994 Cynn, H. and A.M. Hofmeister: High-pressure IR spectra of lattice modes and OH vibrations in hydrous Fe-bearing wadsleyite. *Journal of Geophysical Research* 99, 17717-17728.
- 41 1995 White, W. B. and A. M. Hofmeister: Applications of infrared spectroscopy to structure and bonding in minerals and glasses and to speciation of hydrous components. *Higher Mineralogy* (A. S. Marfunin, editor). Ch 10.6.3. [Invited]
- 42 1995 Hofmeister, A. M. IR Microspectroscopy in Earth Science. In *A Practical Guide to Infrared Microspectroscopy*. (H. J. Humecki, editor). p. 377-416. [Invited]
- 43 1995 Lu, R. and A.M. Hofmeister. Infrared fundamentals and phase transitions in CO₂ up to 50 GPa. *Physical Review B* 52, 3985-3992
- 44 1995 McAloon, B. P. and A. M. Hofmeister: Single-crystal IR spectroscopy of the grossular-andradite binary. *American Mineralogist* 80, 1145-1156.
- 45 1996 P. Burns, F. C. Hawthorne, Hofmeister, A. M., and S. L. Moret: A ferroelastic phase transition in K(Mg_{1-x}Cu_x)F₃ perovskite. *Physics and Chemistry of Minerals* 23, 141-150.
- 46 1996 Hofmeister, A.M., T.J. Fagan, K.M. Campbell, and R.B. Schaal: Single-crystal IR spectroscopy of pyrope-almandine garnets with minor amounts of Mn and Ca. *American Mineralogist* 81, 418-428.
- 47 1996 Hofmeister, A. M.: Thermodynamic properties of stishovite at mantle conditions determined from pressure variations of vibrational modes. *Mineral Spectroscopy: A tribute to Roger G. Burns: GCA Special Publication No. 5, p. 215-227.* [Invited]
- 48 1996 Cynn, H., A. M. Hofmeister, P.C. Burnley, and A. Navrotsky: Thermodynamic properties and hydrogen speciation from vibrational spectra of dense hydrous magnesium silicates. *Phys. Chem. Minerals* 23, 361-376.
- 49 1997 Hofmeister, A. M.: Infrared reflectance spectra of fayalite, and absorption Data from assorted olivines, including pressure and isotope effects. *Physics and Chemistry of Minerals* 24, 535-546.
- 50 1997 Hofmeister, A. M.: IR spectroscopy of alkali halides at very high pressures: calculation of equations of state and of the response of bulk modulus to the B1-B2 phase transition. *Phys. Rev. B* 56, 5835-5855.
- 51 1998 Hofmeister, A.M., R.B. Schaal, K.M. Campbell, S.L. Berry, and T.J. Fagan: Prevalence and origin of birefringence in 48 garnets from the pyrope-almandine-grossular-spessartine quarternary. *American Mineralogist* 83, 1293-1301

- 52 1999 Speck, A.K., Hofmeister, A.M., and Barlow, M.J.: Resolution of the SiC problem: astronomical and meteoritic evidence reconciled. *Astrophysical J. Lett.* 513, L87-L90.
- 53 1999 Hofmeister, A. M., H. Cynn, P.C. Burnley, and C. Meade: Vibrational spectra of dense hydrous magnesium silicates at pressure: importance of the hydrogen bond angle. *American Mineralogist* 84, 454-464.
- 54 1999 Hofmeister, A.M.: Mantle values of thermal conductivity and a geotherm from phonon lifetimes. *Science* 283, 1699-1706.
- 55 1999 Hauck, S.A. II, R.J. Phillips and A. M. Hofmeister: Variable conductivity: Effects on the thermal structure of subducting slabs. *Geophysical Research Letters* 26, 3257-3260.
- 56 1999 Guan Y., A. Hofmeister, S. Messenger, and R.M. Walker (1998) Two types of deuterium-rich carriers in Renazzo matrix. Lunar and Planet Sci XXIX (CD-ROM), abstract 1760.
- 57 2000 Speck, A.K., Barlow, M.J., Sylvester, R.J., and Hofmeister, A.M. Dust features in the 10-micron infrared spectra of oxygen-rich evolved stars. *Astronomy and Astrophysics Supplement Series*, 146, 437-464.
- 58 2000 Hofmeister, A.M., Rosen, L., Speck, A.K. and Barlow, M.J.: Infrared spectra of nanocrystals of SiC, AlN and TiN: implications for scattering theory. *Thermal emissions spectroscopy and analysis of dust, disks and regoliths* (Edited by M. Sitko, A.L. Sprague, and D.K. Lynch), ASP Conference Series, vol. 196, p.292-300.
- 59 2000 Speck, A.K., Hofmeister, A.M., & Barlow, M.J.: Silicon carbide: the problem with laboratory spectra.. *Thermal Emission Spectroscopy of Dust, Disks, and Regoliths* (Eds Sitko M.L., Sprague A.L. & Lynch D.K.), ASP Conference Series, vol. 196, 281-290.
- 60 2000 Hofmeister, A.M., Keppel E., Bowey, J.E., and Speck, A.K. Causes of artifacts in the infrared spectra of powders. *ISO beyond the peaks: The 2nd ISO workshop on analytical spectroscopy* (ed. A. Salama, M.F. Kessler, K. Leech, B. Schulz), 343-346.
- 61 2001 Hofmeister, A.M. and Mao H.K.: Evaluation of shear moduli and other properties of silicates with the spinel structure from IR spectroscopy. *American Mineralogist* 86, 622-639.
- 62 2001 Bowey, J.E., Lee, C., Tucker, C., Hofmeister, A.M., Ade, P.A.R., and Barlow, M.J.: Temperature effects on the 15-85 μ m spectra of olivines and pyroxenes. *Monthly Notices of the Royal Astronomical Society* 325, 886-896.
- 63 2001 Hofmeister, A.M.: Thermal conductivity of spinels and olivines from vibrational spectroscopy at ambient conditions. *American Mineralogist* 86, 1188-1208.
- 64 2001 Criss, R.E. and Hofmeister, A.M.: Thermodynamic cosmology. *Geochimica et Cosmochimica Acta* 65, 4077-4085.
- 65 2002 Hofmeister, A.M. and Mao, H.K.: Redefinition of the mode Gruneisen parameter for polyatomic substances and thermodynamic implications. *Proceedings of the National Academy of Science* 99, 559-564.
- 66 2002 Giesting, P.A.. and Hofmeister, A.M.: Thermal conductivity of disordered garnets from infrared spectroscopy. *Physical Review B*, 65, #144305.
- 67 2002 Bowey, J.E., Barlow. M.J., Molster, F.J., Hofmeister, A.M., Lee, C., Tucker, C., Lim, T., Ade, P.A.R., Waters, L.B.F.M.: The 69- μ m forsterite band as a dust temperature indicator. *Monthly Notices of the Royal Astronomical Society*, 331, L1-L6.
- 68 2002 Koch-Muller, M., Hofmeister, A.M., Fei, Y., and Liu, Z.: High-pressure IR spectra and the thermodynamic properties of chloritoid. *American Mineralogist* 87, 609-622.

- 69 2003 Hofmeister, A.M. and Mao, H.K.: Pressure derivatives of shear and bulk moduli from the thermal Gruneisen parameter and volume-pressure data. *Geochemica Cosmochemica Acta* 66, 1207-1227.
- 70 2003 Hofmeister, A.M., Keppel, E., and Speck, A.K.: Absorption and reflection IR spectra of MgO and other diatomic compounds. *Monthly Notices of the Royal Astronomical Society* 345, 16-38.
- 71 2004 Hofmeister, A. M., P. A. Giesting, B. Wopenka, G. D. Gwanmesia, and B. L. Jolliff: Vibrational spectroscopy of pyrope-majorite garnets: structure and order. *American Mineralogist* 89, 132-146.
- 72 2004 Giesting, P.A., Hofmeister, A. M., Wopenka, B., Gwanmesia, G. D. , and Jolliff, B. L.: Thermal conductivity and thermodynamics of majoritic garnets: Implications for the transition zone. *Earth and Planetary Science Letters* 218, 45-56.
- 73 2004 Speck, A.K. and A.M., Hofmeister, Processing of Presolar Grains around post-AGB Stars: Silicon Carbide as the Carrier of the "21" Micron Feature. *The Astrophysical Journal* 600, 986-991.
- 74 2004 Chaudhary, L., Hofmeister, A.M., and Hruska, K. Differential growth factor control of bone formation thorough osteoprogenitor differentiation. *Journal of Bone and Mineral Research* 34, 402-411.
- 75 2004 Hofmeister, A.M. Thermal conductivity and thermodynamic properties from infrared spectroscopy. In: *Infrared Spectroscopy in Geochemistry, Exploration Geochemistry, and Remote Sensing*, edited by P. King, M. Ramsey, and G. Swayze (Mineralogical Association of Canada, Short course volume 33), 135-154. [Invited]
- 76 2004 Hofmeister, A.M. Enhancement of radiative transfer in the mantle by OH- in minerals. *Physics of the Earth and Planetary Interiors*, 146, 483-485.
- 77 2004 Hofmeister, A.M., Wopenka, B, and Locock, A. Spectroscopy and structure of hibonite, grossite, and CaAl₂O₄: implications for astronomical environments. *Geochimica Cosmochimica Acta* 68, 4485-4503
- 78 2004 Hofmeister, A.M. Physical properties of calcium aluminates from vibrational spectroscopy. *Geochimica Cosmochimica Acta* 68, 4721-4726
- 79 2005 Hofmeister, A.M and Criss, R.E. Earth's heat flux revisited and linked to chemistry. *Tectonophysics* 395, 159-177.
- 80 2005 Bowey, J.E. and Hofmeister, A.M. Overtones and the 5-8 μm spectra of deeply embedded objects. *Monthly Notices of the Royal Astronomical Soc.* 358, 1383-1393.
- 81 2005 Hofmeister, A.M and Criss, R.E. Mantle convection and heat flow in the triaxial Earth. In: *Melting anomalies: Their Nature and Origin*, edited by G. R. Foulger, J.H. Natland, D.C. Presnall, and D.L. Anderson (Geological Society of America, Boulder CO) pp 289-302.
- 82 2005 Hofmeister, A.M. The dependence of radiative transfer on grain-size, temperature, and pressure: implications for mantle processes. *Journal of Geodynamics* 40, 51-72
- 83 2005 Speck, A.K., Thompson, G.D., and Hofmeister, A.M. The effect of stellar evolution on dust grain sizes. *Astrophysical Journal*, 634, 426-435
- 84 2005 Hofmeister, A.M and Criss, R.E. Re: Reply to "Comments on Earth's heat flux revised and linked to chemistry" by R. Von Herzen, E.E. Davis, A. Fisher, C.A. Stein and H.N. Pollack. *Tectonophysics* 409, 193-198.
- 85 2006 Hofmeister, A.M. Thermal diffusivity of garnets to high temperature. *Physics and Chemistry of Minerals* 33, 45-62

- 86 2006 Hofmeister, A.M. and Bowey, J.E. Quantitative IR spectra of hydrosilicates and related minerals *Monthly Notices Royal Astronomical Society* 367, 577-591
- 87 2006 Hofmeister, A.M. Thermodynamic and structural evidence that low-spin Fe²⁺ is absent from Earth's mantle. *Earth and Planetary Science Letters* 243, 44-52.
- 88 2006 Hofmeister A.M., Pertermann, M., Branlund, J. and Whittington, A.G. Geophysical implications of reduction in thermal conductivity due to hydration. *Geophysical Research Letters* 33, doi: 10.1029/2006GL026036
- 89 2006 Pitman, K.M., Hofmeister, A.M., and Speck, A.K. Is silicon nitride dust present in extreme carbon stars? *Monthly Notices of the Royal Astronomical Society* 371, 1744-1754
- 90 2006 Pertermann, M. and Hofmeister A.M. Thermal diffusivity of olivine-group minerals. *American Mineralogist* 91, 1747-1760
- 91 2006 Hofmeister, A.M and Criss, R.E. Comment on "Estimates of heat flow from Cenozoic seafloor using global depth and age data" by M. Wei and D. Sandwell. *Tectonophysics* 428, 95-100
- 92 2007 Hofmeister, A.M. Pressure dependence of thermal transport properties. *Proceedings of the National Academy of Science* 104, 9192-9197.
- 93 2007 Hofmeister, A.M. Thermal conductivity of Earth's deepest Mantle. *Superplume: Beyond Plate Tectonics*. D.A. Yuen, S. Maruyama, S.I. Karato, and B.F. Windley, eds. (Springer, Dordrecht, the Netherlands) pp 269-292.
- 94 2007 Hofmeister, A.M. and Pitman, K.M. Evidence for kinks in structural and thermodynamic properties across the forsterite-fayalite binary from thin-film IR spectra. *Physics and Chemistry of Minerals* 34, 319-333.
- 95 2007 Hofmeister, A.M. and Criss, R.E. Comment on "John Perry's neglected critique of Kelvin's age for the Earth. A missed opportunity in geodynamics by P. England, P. Molnar, and F. Richter". *GSA Today* 17,10.
- 96 2007 Hofmeister, A.M. and D. A. Yuen. Critical phenomena in thermal conductivity: Implications for lower mantle dynamics. *Journal of Geodynamics* 44, 186-199
- 97 2007 Hofmeister, A.M., Pertermann, M. and Branlund, J. M. Thermal conductivity of the Earth. *Treatise in Geophysics* (G. Schubert, Ed. In Chief) V. 2 Mineral Physics (G.D. Price, ed.). Elsevier, The Netherlands, pp 543-578.
- 98 2007 Branlund J.M. and Hofmeister A.M. Thermal diffusivity of quartz to 1000 degrees C: Effects of impurities and the α - β phase transition. *Phys. Chem. Minerals*. 34, 581-595.
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