# PETER LEE OLSON

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Date of Birth: August 8, 1950; Lincoln, Nebraska USA

RESEARCH INTERESTS:

Dynamics of the Earth's Mantle and Core
Planetary Magnetism and Geomagnetism
Laboratory Geodynamics Experiments
Composition and Evolution of Earth's Mantle and Core
Geophysical Fluid Dynamics
Accretion and Core Formation in Terrestrial Planets

EDUCATION:

Ph.D. Geophysics, June 1977, University of California, Berkeley, California
M.A. Geophysics, June 1974, University of California, Berkeley, California
B.A. Geology, June 1972, University of Colorado, Boulder, Colorado
Ph.D. Thesis: Internal Waves and Hydromagnetic Induction in the Earth's Core

PREVIOUS POSITIONS:

Geophysicist, Petty Geophysical Company, San Antonio, Texas (1970)
Geophysicist, Amoco Production Company, Denver, Colorado (1971)
Research Assistant, United States Geological Survey, Denver, Colorado (1972)
Visiting Assistant Professor, University of California, Berkeley (1980)
Assistant Professor of Geophysical Fluid Dynamics, Johns Hopkins University, Baltimore, Maryland (1977-1982)
Research Scientist, Chesapeake Bay Institute (1982-1986)
Associate Professor of Geophysical Fluid Dynamics, Johns Hopkins University, Baltimore, Maryland (1982-1986)
Professor of Geophysical Fluid Dynamics, Johns Hopkins University Baltimore, Maryland (1987-2017)
Chair, Department of Earth and Planetary Sciences, Johns Hopkins University (7/01-7/04)
Interim Chair, Department of Earth and Planetary Sciences, Johns Hopkins University (12/06-2/07)

AWARDS AND HONORS:

University of California Regents Fellow, 1976
American Geophysical Union Frontiers of Geophysics Lecturer, 1988
W. Keck Scholar, Woods Hole Oceanographic Institution, 1990
Visiting Professor, Ecole Normale Superieure, 1995
Fellow, American Geophysical Union, 1997
Honorary Fellow, European Union of Geosciences, 1999
Gauss Visiting Professor, Gottingen, 2001-2002
Morton K. Blaustein Professor, JHU, 2001-2004
Fellow, American Academy of Arts & Sciences, 2005
Member, U.S. National Academy of Sciences, 2007
Bullard Lecture, American Geophysical Union, 2007
Frontiers Lecturer, Oregon State University, 2010
Edison Lecturer, Notre Dame University, 2011
Petrus Peregrinus Medal, European Geosciences Union, 2011
American Geophysical Union, Excellence in Refereeing Citation, 2013
Inge Lehmann Medal, American Geophysical Union, 2015

MEMBERSHIP AND COMMITTEES:

**Currently (partial listing):**

American Geophysical Union, CIG Geodynamo Users Group
American Civil Liberties Union; The Sierra Club; Nature Conservancy; The Wilderness Society; Oxfam; National Wildlife Federation; National Arbor Day Federation; National Parks Conservation Association; Trout Unlimited; Audubon Society…10 additional organizations and societies

**Previously (partial listing):**

Ethics Board; Graduate Board, Johns Hopkins University
Program Chairman, American Geophysical Union, Tectonophysics Section
Scientific Advisory Board, Maryland Power Plant Siting Program
Scientific Steering Panel, NASA GRM mission
University Corporation for Atmospheric Research Representative
IASPEI Committee on Geodynamics; National Research Council NROES Committee
AGU EOS Editorial Board
U.S. National Committee on Studies of Earth's Deep Interior
NSF Geophysics/Seismology Panel; AGU Focus Group Fellows Committee
SEDI International; Los Alamos IGPP Advisory Board
NSF CSEDI Panel; President, Tectonophysics Section of American Geophysical Union
Cooperative Institute for Deep Earth's Interior Science Steering Committee
Computational Infrastructure in Geodynamics Science Steering Committee Chair
Computational Infrastructure in Geodynamics Executive Committee Chair
American Physical Society; JHU Distinguished Awards Committee
American Association Advancement Sciencel European Geosciences Union
AGU GRL Editors Search Committee Chair
Natl Acad Sci Sect 16 Solid Earth Subsection Chair
National Research Council Committee on Seismology and Geodynamics
AGU SEDI Committee; American Geophysical Union Fleming Medal Committee

Kavli Institute for Theoretical Physics Advisory Committee

EDITORIAL AND OTHER OFFICES:

Reviewing Editor, *Science* (8/86-1/88)
Associate Editor, *Journal of Geophysical Research* (10/86-12/89)
Associate Editor, *Reviews of Geophysics* (5/88-5/91)
Faculty Editorial Board, The Johns Hopkins University Press (9/88-9/91)
Editor, *Geophysical Research Letters* (1/91-1/94)
Associate Editor, *G-Cubed* (10/99-10/01)
Associate Editor, *Treatise on Geophysics* (9/04-11/07)
Editorial Board, *EOS* (3/08-14)
Occasional Editor for Geophysics *PNAS* (6/12-)

RESEARCH GRANTS & CONTRACTS, 1980-present; PARTIAL LIST

| Title | Agency Sponsor |
|---|---|
| Geomagnetism and Core Motions | NSF |
| Hydrodynamics of Baltimore Harbor | MD Dept. Natural Resources |
| Channel Dredging Effects in Baltimore Harbor | MD Dept. Natural Resources |
| Causes and Consequences of Subtidal Variability in Chesapeake Bay Circulation | MD Dept Natural Resources Power Plant Siting |
| A Study of Some Convective Processes in the Earth's Core and Mantle | NSF |
| A Study of Convective Processes in the Earth's Mantle and Core | NSF |
| Supercomputers | NSF |
| Acquisition of a VAX-11/750 computer system | NSF |
| Patuxent River Circulation | MD DHMH |
| Prospecting for Mantle Plumes Using Satellite Geoid and Gravity Data | NASA |
| Boundary Layer Dynamics in the Earth's Mantle | NSF |
| Dynamo Models of Paleomagnetic Secular Variation | NSF |
| Subsolidus Convection in the Earth's Interior | IGPP |
| Long Term Numerical Simulations of the Patuxent Estuary Hydrodynamics | MD Dept. of Energy |
| Three-dimensional estuarine circulation | MD Dept. of Energy |
| Mantle Convection With Surface Plates | IGPP |
| Mantle Plume Dynamics in the Terrestrial Planets | NASA |
| Experimental Geodynamics | NSF |
| Convection in a Rapidly Rotating Sphere | IGPP |
| Rotating Convection with Precession | NSF |
| Experimental Geodynamics | NSF |
| Magnetoconvection in the Earth's Core | IGPP |

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|---|---|
| Cooperative Research on Earth's Deep Interior | NSF |
| Seismodynamics of the Lithosphere | NSF |
| Causes and Consequences of Geomagnetic Dipole Moment Change | NSF |
| Geomagnetic Polarity Reversals and the Geodynamo | NSF |
| Core-Mantle Interactions and Evolution of the Geodynamo | NSF |
| Fluid Dynamics Experiments on Core Formation | NSF |

**Current:**

| | |
|---|---|
| Open Earth Systems: Whole planet models for global processes and major events in Earth's history (FESD) | NSF<br>NSF |

UNIVERSITY COURSES TAUGHT:

General Undergraduate Courses:
*Planet Earth*
*Earth's Environments*
*Our Changing Planet*
*Introduction to Global Environmental Change Science*
*Freshman Seminar in the Earth Sciences*
*Oceans and Atmospheres*

Upper Division Undergraduate Courses:

*Introduction to Seismology*
*Geodynamics*
*Oceanography*
*Principles of Natural Catastrophes*
*Planets, Life, Universe*

Graduate Courses:
*Geophysical Fluid Dynamics*
*Fluid Dynamics of the Earth and Planets*
*Time Series Methods in Geophysics*
*Earth's Core and the Geodynamo*
*Planetary Interiors*
*Mechanics of Earth's Interior*
*Dynamics of the Earth's Mantle*
*Special Topics in Geophysics*

PREVIOUS Ph.D. STUDENTS (partial list with current affiliations):
Mario Viera (USNA; ret.); Robert Edmonds, Juan Hinojosa (TAMU Laredo); Michael Shore (DARPA; ret.), Harvey Singer (GMU), Bruce Parker (Stevens Univ.) Virginia Lee Hagee,

Andrew Jephcoat (Oxford), Chris Kincaid (GSO-URI), Stuart Weinstein (NOAA), Philippe Cardin (Univ. Grenoble), Moritz Heimpel (Univ. Alberta), Daniel Brito (Univ. Pau), Jim Buttles (UT Austin), Jonathan Aurnou (UCLA), Hagay Amit (Univ. Nantes), Peter Driscoll (Carnegie DTM), Benjun Wu (Nanjing Univ.)

RECENT GRADUATE STUDENTS and POST-DOCS

Lijun Liu (Univ. Ill), Christina King (Ore. St. Univ.), Renaud Deguen (Univ. Lyon), Eshwan Ramudu (Univ. Chicago), Maylis Landeau (Cambridge DAMTP)

CURRENT GRADUATE STUDENTS:

Han Zhang UNM (2nd advisor)

CONSULTING (Previously):

Maryland State Office of Environmental Programs
Martin Marietta Corporation
Los Alamos National Laboratory
Universities Space Research Association

PUBLICATIONS

**(Google Scholar: n=10950; h_index=56; Aug 2019)**

http://scholar.google.com/citations?user=Oel6S2cAAAAJ&hl=en

ARTICLES:

1. Olson, P., Internal Waves in the Earth's Core, *Geophys. J.R. Astr. Soc.,* **51**, 183-215, 1977.
2. Olson, P., A Flux Line Method for Numerical Studies of Kinematic Dynamos, *Woods Hole Ocean. Inst. Tech. Rep.*, **78-67,** 150-151, 1978.
3. Elsasser, W.M., P. Olson, and B.D. Marsh, The Depth of Mantle Convection, *J. Geophys. Res.*, **84**, 146-155, 1979.
4. Olson, P. and G.M. Corcos, A boundary layer model for mantle convection with surface plates, *Geophys. J.R. Astr. Soc.*, **62**, 195-219, 1980.
5. Olson, P., Mantle convection with spherical effects, *J. Geophys. Res.*, **86**, 4881-4891, 1981.
6. Olson, P., A simple physical model for the terrestrial dynamo, *J. Geophys. Res.*, **86**, 10785-10882, 1981.
7. Olson, P. and D.A. Yuen, Thermochemical Plumes and Mantle Phase Transitions, *J. Geophys. Res.*, **87**, 3993-4002, 1982.
8. Boicourt, W.D. and P. Olson, A Hydrodynamic Study of the Baltimore Harbor System, Part I: Observations on the Circulation and Mixing in Baltimore Harbor, Chesapeake Bay Inst. Bulletin #1, 120 pp., 1982.
9. Olson, P., W.D. Boicourt, and T.O. Najarian, A Hydrodynamic Study of the Baltimore Harbor System, Part II: A Numerical Model of the Baltimore Harbor Circulation, Chesapeake Bay Inst. Bulletin #2, 152 pp., 1982.
10. Bougault, H., S.C. Cande, J.-G. Schilling, P. Olson, and D.L. Turcotte, Mantle Heterogeneity and Convection, *Nature*, **305**, p. 278, 1983.
11. Olson, P., Geomagnetic Polarity Reversals in a Turbulent Core, *Phys. Earth Planet. Inter.,* **33**, 260-274, 1983.

12. Olson, P., D.A. Yuen, and D. Balsiger, Mixing of Passive Heterogeneities by Mantle Convection. *J. Geophys. Res.*, **89**, 425-436, 1984.
13. Singer, H. and P. Olson, Dynamo Action in a Stably Stratified Core, *Geophys. J.R. Astr. Soc.*, **78**, 371-387, 1984.
14. Olson, P., An Experimental Approach to Thermal Convection in a Two-Layered Mantle, *J. Geophys. Res.*, **89**, 11293-11301, 1984.
15. Olson, P. A Spectral Model for Subtidal Variability in the Chesapeake Bay, *Maryland Academy of Sciences PPRP-89*, 59 pp., 1984.
16. Olson, P., D.A. Yuen, and D. Balsiger, Convective mixing and the fine structure of mantle heterogeneity, *Phys. Earth Planet. Inter.,* **36**, 291-304, 1984.
17. Olson, P. and H. Singer, Creeping Plumes, *J. Fluid Mech.*, **158**, 509-529, 1985.
18. Silver, P.G., R.W. Carlson, P. Olson, and P. Bell, Mantle Structure and Dynamics, *Eos Transactions American Geophysical Union*, **66**, 1193-1198, 1985.
19. Olson, P. and I.S. Nam, The Formation of Sea Floor Swell by Mantle Plumes, *J. Geophys. Res.*, **91**, 7181-7191, 1986.
20. Olson, P. and U. Christensen, Soliary Wave Propagation in a Fluid Conduit Within a Viscous Matrix, *J. Geophys. Res.*, **91**, 6367-6374, 1986.
21. Olson, P., The Spectrum of Subtidal Variability in Chesapeake Bay Circulation, *Estuarine, Coastal and Shelf Sciences,* **23**, 527-550, 1986.
22. Olson, P. and V.L. Hagee, Dynamo Waves and Paleomagnetic Secular Variation, *Geophys. J.R. Astr. Soc.,* **88**, 139-159, 1987.
23. Jephcoat, A.P. and P. Olson, Is the Inner Core Pure Iron?, *Nature*, **325**, 332-335, 1987.
24. Olson, P., G. Schubert, and C.A. Anderson, Plume Formation in the D"-Layer and the Roughness of the Core-Mantle Boundary, *Nature*, **327**, 409-413, 1987.
25. Olson, P., Drifting Mantle Hotspots, *Nature*, **327**, 559-560, 1987.
26. Olson, P., A Comparison of Heat Transfer Laws for Mantle Convection at Very High Rayleigh Numbers, *Phys. Earth & Planet. Int.*, **48**, 153-160, 1987.
27. Lund, S.P. and P. Olson, Historic and Paleomagnetic Secular Variation and the Earth's Core Dynamo Processes, *Rev. Geoph. Space Phys.*, **25**, 917-918, 1987.
28. Kincaid, C. and P. Olson, An Experimental Study of Subduction and Slab Migration, *J. Geophys. Res.*, **92**, 13832-13840, 1987.
29. Olson, P., Fate of Subducted Lithosphere, *Nature*, **331**, 113-114, 1988.
30. Weinstein, S.A., D.A. Yuen, and P. Olson, Evolution of crystal settling in magma chamber convection, *Earth. & Planet. Sci. Lett.*, **87**, 237-248, 1988.
31. Silver, P.G., R.W. Carlson, and P. Olson, Deep Slabs, Geochemical Heterogeneity and the Large-Scale Structure of Mantle Convection: Investigation of an Enduring Paradox, *Ann. Rev. Earth Planet. Sci.*, **16**, 477-452, 1988.
32. Kincaid, C. and P. Olson, A Numerical Investigation of Circulation and Salt Distribution in the Patuxent River Estuary, in *Understanding the Estuary: Advances in Estuary Research*, Chesapeake Research Consortium, pp. 323-351, 1988.
33. Olson, P. and V. Grano, Changes in Circulation and Salinity from Increased Channel Depth in the Baltimore Harbor, in *Understanding the Estuary: Advances in Chesapeake Bay Research*, Chesapeake Research Consortium, pp. 302-322, 1988.
34. Olson, P., G. Schubert, and C. Anderson, Plume Formation and Lithosphere Erosion: A Comparison of Laboratory and Numerical Experiments, *J. Geophys. Res.*, **93**, 15065-15084, 1988.

35. Hagee, V.L. and P. Olson, Evidence for wave propagation in the Holocene paleomagnetic field, in *Geomagnetism and Paleomagnetism*, F.J. Lowes et al., eds., 107-121, 1989.
36. Weinstein, S.A. and P. Olson, The Proximity of Hotspots to Convergent and Divergent Plate Boundaries, *Geophys. Res. Lett.*, **16**, 433-436, 1989.
37. Weinstein, S.A., P. Olson, and D.A. Yuen, Time Dependent Large Aspect Ratio Thermal Convection in the Earth's Mantle, *Geophys. Astr. Fluid Dyn.*, **47**, 157-197, 1989.
38. Blankenbach, B., F. Busse, U. Christensen, L. Cserepes, U. Hansen, H. Harder, G. Jarvis, M. Koch, G. Marquardt, D. Moore, P. Olson, H. Schmeling, and T. Schnaubelt, A Benchmark Comparison for Mantle Convection Codes, *Geophysical Journal,* **98**, 23-28, 1989.
39. Olson, P., G. Schubert, C. Anderson, and P. Goldman, Solitary Waves in Mantle Plumes, *J. Geophys. Res.*, **94**, 9523-9532, 1989.
40. Olson, P. Toroidal flow in the outer core and the thermal regime below the core-mantle boundary, *Geophys. Res. Lett.,* **16**, 613-616, 1989.
41. Olson, P., Mantle Convection and Plumes in *Encyclopedia of Geophysics*, D.E. James, ed., Van Nostrand Reinhold, 788-802, 1989.
42. Hagee, V.L. and P. Olson, An Analysis of Paleomagnetic Secular Variation in the Holocene, *Phys. Earth & Planet. Int.*, **56**, 266-284, 1989.
43. Kincaid, C. and P. Olson, Numerical Model of Patuxent River Estuary Hydrodynamics, *Geophysical Fluid Dynamics Technical Report,* **89-1**, 135 pp., 1990.
44. Olson, P., P.G. Silver, and R.W. Carlson, The large-scale structure of convection in the Earth's mantle, *Nature*, **344**, 209-215, 1990.
45. Olson, P. and V.L. Hagee, Geomagnetic polarity reversals, transition field structure and convection in the outer core, *J. Geophys. Res.,* **95**, 4609-4620, 1990.
46. Weinstein, S.A. and P. Olson, Planforms in thermal convection with internal heat sources at large Rayleigh and Prandtl numbers, *Geophys. Res. Lett.*, **17**, 239-242, 1990.
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48. Travis, B., P. Olson, and G. Schubert, The transition from two-dimensional to three-dimensional planforms in infinite Prandtl number thermal convection, *J. Fluid Mech.*, **216**, 71-91, 1990.
49. Olson, P., Hotspots, Swells and Mantle Plumes, in *Magma Transport and Storage*, M.P. Ryan, ed., John Wiley and Sons, N.Y., 33-51, 1990.
50. Lay, T., T.J. Ahrens, P. Olson, J. Smyth, and D. Loper, Studies of the Earth's deep interior: Goals and trends, *Physics Today*, **10**, 44-52, 1990.
51. Travis., B.J., C. Anderson, T. Baumgardner, D.W. Gable, B.H. Hager, R. O'Connell, P. Olson, A. Raefsky, and G. Schubert, A benchmark comparison of numerical methods for infinite Prandtl number thermal convection in two-dimensional Cartesian geometry, *Geophys. Astrophys. Fluid Dyn.*, **55**, 137-160, 1990.
52. Olson, P. and C. Kincaid, Experiments on the Interaction of Thermal Convection and Compositional Layering at the Base of the Mantle, *J. Geophys. Res.*, **96**, 4347-4354, 1991.
53. Hagee, V.L. and P. Olson, Dynamo models with permanent dipole fields and secular variation, *J. Geophys. Res.*, **96**, 11673-11688, 1991.
54. Olson, P. and D. Bercovici, On the equipartition of kinetic energy in plate tectonics, *Geophys. Res. Lett.*, **18**, 1751-1754, 1991.

55. Larson, R.L. and P. Olson, Mantle plumes control magnetic reversal frequency, *Earth Planet. Sci. Lett.*, **107**, 437-447, 1991.
56. Olson, P., Superplumes from the deep mantle, *Physics News,* Amer. Inst. Physics, 46-47, 1991.
57. Cardin, P. and P. Olson, An experimental approach to thermochemical convection in the Earth's core, *Geophys. Res. Lett.*, **19**, 1995-1998, 1992.
58. Weinstein, S.A. and P. Olson, Thermal convection with non-Newtonian plates, *Geophys. J. Int'l.*, **111**, 515-530, 1992.
59. Rubin, H. and P. Olson, Walter M. Elsasser, *Physics Today*, pp. 98-99, February 1993.
60. Olson, P., G. Schubert, and C. Anderson, Structure of axisymmetric mantle plumes, *J. Geophys. Res.*, **98**, 6829-6844, 1993.
61. Glatzmaier, G. and P. Olson, Highly supercritical thermal convection in a rotating spherical shell, *Geophys. Astrophys. Fluid Dyn.*, **70**, 113-136, 1993.
62. Solomatov, V., P. Olson, and D. Stevenson, Entrainment of Particles in Convective Layers, *Earth Planet. Sci. Lett.*, **120**, 387-393, 1993.
63. Cardin, P. and P. Olson, Chaotic convection in a rapidly rotating spherical shell: Consequences for flow in the outer core, *Phys. Earth Planet. Int.*, **82**, 235-259, 1994.
64. Travis, B. and P. Olson, Convection with internal heat sources and thermal turbulence in the Earth's mantle, *Geophys. J. Int'l.*, **118**, 881-901, 1994.
65. Olson, P., Mechanics of flood basalt magmatism, in *Magmatic Systems*, M.P. Ryan, ed., Academic Press, pp. 1-18, 1994.
66. Heimpel, M. and P. Olson, Buoyancy-driven dike propagation through the lithosphere: Models and experiments, in *Magmatic Systems*, M.P. Ryan, ed., Academic Press, pp. 223-240, 1994.
67. Cardin, P. and P. Olson, The influence of toroidal magnetic field on thermal convection in the core, *Earth Planet. Sci. Lett.,* **132**, 167-181, 1995.
68. Guillou-Frottier, L., J. Buttles, and P. Olson, Laboratory experiments on the structure of subducted lithosphere, *Earth Planet. Sci. Lett.*, **133**, 19-34, 1995.
69. Olson, P. and G.A. Glatzmaier, Magnetoconvection in a rotating spherical shell: Structure of flow in the outer core, *Phys. Earth Planet. Inter.*, **92**, 109-118, 1995.
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72. Manneville, J.-B. and P. Olson, Convection in a rotating fluid sphere and the banded structure of the Jovian atmosphere, *Icarus,* **122**, 242-250, 1996.
73. Heimpel, M. and P. Olson, A seismodynamical model of lithosphere deformation: Development of continental and oceanic fault networks, *J. Geophys. Res.*, **101**, 16155-16176. 1996.
74. Aurnou, J.M., J.L. Buttles, G.A. Neumann, and P. Olson, Electromagnetic core-mantle coupling and paleomagnetic reversal paths, *Geophys. Res. Lett.*, **23**, 2705-2708, 1996.
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83. Christensen, U., P. Olson and G.A. Glatzmaier, Numerical modelling of the geodynamo: a systematic parameter study, *Geophys. J. Int.*, **138**, 393-409, 1999.
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85. Olson, P. and J. Aurnou, A polar vortex in the Earth's core, *Nature*, **402**, 170-173, 1999.
86. Sumita, I. and P. Olson, A laboratory model for the convection in the Earth's core driven by a thermally heterogeneous mantle, *Science,* **286**, 1547-1549, 1999.
87. Aurnou, J. and P. Olson, Control of inner core rotation by electromagnetic, gravitational and mechanical torques, *Phys. Earth Planet. Inter.*, **117**, 111-121, 2000.
88. Sumita, I. and P. Olson, Laboratory experiments on high Rayleigh number thermal convection in a rapidly rotating hemispherical shell, *Phys. Earth Planet. Inter.*, **117**, 153-170, 2000.
89. Aurnou, J. and P. Olson, Experiments on Rayleigh-Benard convection, magnetoconvection and rotating magnetoconvection in liquid gallium, *J. Fluid Mech.*, **430**, 283-307, 2001.
90. Aurnou, J. and P. Olson, Strong zonal winds generated by thermal convection in rotating spherical shells, *Geophys. Res. Lett.*, **28**, 2557-2559, 2001.
91. Olson, P., Mantle convection and plumes, in *Encyclopedia of Physical Science and Technology, 3rd ed., R. A. Meyers, ed.* **9**, 77-94, 2002.
92. Brito, D., Elbert, D. and P. Olson, Experimental crystallization of gallium: ultrasonic measurements of elastic anisotropy and implications for the inner core *Phys Earth Planet Inter.*, **129**, 325-346, 2002.
93. Sumita, I. and P. Olson, Rotating thermal convection in a hemispherical shell With heterogeneous boundary heat flux: implications for the Earth's core, *J Geophys. Res.,* **107**, 10.1029/2001JB000548, 2002.
94. Olson, P., The disappearing dipole, *Nature* **416**, 590-591, 2002.
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96. Olson, P., and U.R. Christensen, The time averaged magnetic field in numerical dynamos with nonuniform boundary heat flow, *Geophys. J. Int.*, **151**, 809-823, 2002.
97. Olson, P. Thermal interaction of the core and mantle, *Earth's Core and Lower Mantle,*

C. A. Jones, A. M. Soward and K. Zhang, eds., Taylor and Francis, London, 1-38, 2003.
98. Aurnou, J., Andreadis, S., Zhu, L. and P. Olson, Experiments on convection in Earth's core tangent cylinder, *Earth Planet Sci Lett*, **212**, 119-134, 2003.
99. Christensen, U.R. and Olson, P., Secular variation in numerical geodynamo models with lateral variations of boundary heat flow, *Phys Earth Planet Inter*., **138**, 39-54, 2003.
100. Sumita, I. and P. Olson, Experiments on highly supercritical thermal convection in a rapidly rotating hemispherical shell, *J. Fluid Mech.,* **492**, 271-287, 2003.
101. Wicht, J. and P. Olson, A Detailed study of the polarity reversal mechanism in a numerical dynamo model, *Geochemistry, Geodynamics, Geosystems*, 5, doi 10.1029/2003GC000602, 2004.
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103. Amit, H. and P. Olson, Helical core flow from geomagnetic secular variation, *Phys. Earth Planet. Inter*., **147**,1-25, 2004.
104. Glatzmaier, G. and P. Olson, Probing the Geodynamo, *Scientific American*, **292**, 50-57, 2005 (republished in Our Ever Changing Earth, Special Volume **15**, 28-35, 2005.)
105. Amit, H. and P. Olson, Time-average and time-dependent parts of core flow, *Phys Earth Planet Inter*., **155**, 120-139, 2006.
106. Olson, P and H. Amit, Changes in Earth's Dipole, *Naturwissenschaften, **93**, 519-542,* doi.org/10.1007/s00114-006-0138-6, 2006.
107. Olson, P., and U.R. Christensen, Dipole Moment Scaling for Convection-Driven Planetary Dynamos*, Earth and Planetary Science Letters*, **250,** 561-571, 2006
108. Olson, P. Thermal Wind*,* in *Encyclopedia of Geomagnetism and Paleomagnetism*, eds. D. Gubbins & E. Herrero-Bervera, Springer, Dordrecht, 495-497, 2007.
109. Olson, P. John Verhoogen*,* in *Encyclopedia of Geomagnetism and Paleomagnetism*, eds. D. Gubbins & E. Herrero-Bervera, Springer, Dordrecht, 979-980, 2007.
110. Amit, H., P. Olson and U. Christensen, Tests of core flow imaging methods using numerical dynamo models, *Geophys J. Int*, **168**, 27-39, 2007.
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