

Peter A. Gilman

Curriculum Vitae

Peter A. Gilman received the Ph.D. from the Massachusetts Institute of Technology and is currently a Senior Scientist Emeritus at the National Center for Atmospheric Research (NCAR) in Boulder, Colorado. His research focuses on the fluid dynamics and magneto-fluid dynamics of the sun, stars, and planets. He was Director of the NCAR High Altitude Observatory (1987–1989) and Associate Director of NCAR (1989–1995). He has served on numerous national and international committees, and has authored or co-authored more than 170 publications in refereed journals. In 2006, he was awarded the Hale Prize, the highest honor of the Solar Physics Division of the American Astronomical Society

Date of Birth

28 May 1941

Education

1966	Ph.D., Meteorology, Massachusetts Institute of Technology (Thesis Advisor: Victor P. Starr)
1964	M.S., Meteorology, Massachusetts Institute of Technology
1962	B.A., Physics, Harvard College (Magna Cum Laude)

Professional Experience

2009 – Present	Senior Scientist Emeritus, NCAR
2000 – 2005	Head, Solar Interior and Variability Section, HAO, NCAR
1973 – 2009	Senior Scientist, NCAR
1995 – 2009	Professor Adjoint, Department of Astrophysical and Planetary Sciences, University of Colorado
1989 – 1995	Associate Director, NCAR
1987 – 1989	Director, High Altitude Observatory, NCAR
1977 – 1987	Head, Solar Interior Section, HAO, NCAR
1977 – 1991	Professor Adjoint, Department of Astrophysical Planetary and Atmospheric Sciences, University of Colorado
1971 – 1975	Chairman, Advanced Study Program, NCAR
1970 – 1977	Lecturer, Department of Astro-Geophysics, University of Colorado
1970 – 1975	Scientific Staff, Advanced Study Program, NCAR
1969 – 1970	Long-term Visitor, Advanced Study Program, NCAR
1966 – 1969	Assistant Professor, Department of Astro-Geophysics, University of Colorado

Professional Service

2001 – 2010	Member, Association of Universities for Research in Astronomy (AURA) Board of Directors
2000 – 2007	Member, Solar Observatories Council, AURA
2000 – 2003	Chairman, Solar Observatories Council, AURA
1999 – 2000	Member, Observatories Council, AURA
2000	Member, NASA SR/T Peer Review Panel for Solar Theory
1998 – 2001	Member, Panel on Education and Public Policy, Astronomy and Astrophysics Survey Committee (Decadal Survey), National Academy of Sciences
1998 – 2000	Member, Council of Solar Physics Division, American Astronomical Society (elective office)
1997 – Present	Member, Scientific Advisory Group, SOLIS (Synoptic Optical Long Term Investigations of the Sun) Project, National Solar Observatory
1998	Member, Search Committee for new Director of the National Solar Observatory
1996 – Present	Member, Solar Magnetism Initiative Steering Committee
1988 – 1995	Member, Editorial Board, <i>Solar Physics</i>
1986 – 1988	Member, Program Advisory Committee, Division of Advanced Scientific Computing, National Science Foundation (Chairman 1988)
1984 – Present	Member, Scientific Advisory Committee, Global Oscillations Network Group, National Solar Observatory
1983	Member, NASA Working Group: Solar Interior & Heliospheric Dynamics Mission
1980 – 1983	Member, Committee on Solar and Space Physics, Space Science Board, National Academy of Sciences
1979 – 1980	Member, Working Group on Related Areas of Science, Astronomy Survey Committee, National Academy of Sciences
1978 – 1979	Member, NASA Science Working Group: Solar Cycle & Dynamics Mission
1977 – 1995	Member, Editorial Board, <i>Geophysical and Astrophysical Fluid Dynamics</i>
1977 – 1979	Consultant: “Sun, Weather, & Climate,” National Academy of Sciences
1976 – 1979	Member, NASA Solar Physics Management and Operations Working Group

Major UCAR/NCAR Committees and Programs

2003 – 2004	Chairman, NCAR Appointments Review Group
2000 – 2003	Member, NCAR Appointments Review Group
1992 – 1995	Member, UCAR President’s Council
1987 – 1995	Member, NCAR Directors’ Committee
1971 – 1975	Member, NCAR Directors’ Committee
1986	Chairman, Strategic Planning Committee for NCAR Computing
1996 – 1997	Chair, Geophysical Turbulence Program

Honors

- 2020 Elected as Legacy Fellow of the American Astronomical Society
- 2007 Winner of the John W. Frior Publication Award recognizing the paper
“Simulating and Predicting Solar Cycles Using a Flux-Transport Dynamo,” M.
Dikpati and P.A. Gilman, *Ap. J.*, **649**, 498–524, 2006.
- 2006 Winner of the George Ellery Hale Prize of the Solar Physics Division of the
American Astronomical Society

Professional Affiliations

- American Association for the Advancement of Science (AAAS)
- American Astronomical Society (AAS)
- American Geophysical Union (AGU)
- International Astronomical Union (IAU)

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Bibliography

Peter A. Gilman has 169 publications, mostly in *The Astrophysical Journal*, *Solar Physics*, *Astronomy and Astrophysics*, *Geophysical & Astrophysical Fluid Dynamics*, *Physics of Fluids*, *Journal of Fluid Mechanics*, *Journal of the Atmospheric Sciences*, and *Tellus*, as well as various proceedings and books.

1. Gilman, P. A., Indirect measurement of the mean meridional circulation in the southern hemisphere, M. S. thesis, Department of Meteorology, M. I. T. Also as contract AF19 (628)-2408, Planetary Circulations Project, Department of Meteorology, M. I. T., 49 pp., 1963.
2. Gilman, P. A., On the vertical transport of angular momentum in the atmosphere, *Pure and Applied Geophysics*, **57**, 161–166, 1964.
3. Gilman, P. A., On the mean meridional circulation in the presence of a steady state, symmetric, circumpolar vortex, *Tellus*, **16**, 160–167, 1964.
4. Gilman, P. A., The mean meridional circulation of the southern hemisphere inferred from momentum and mass balance, *Tellus*, **17**, 277–284, 1965.
5. Starr, V. P., and P. A. Gilman, Energetics of the solar rotation, *Astrophysical Journal*, **141**, 1119–1125, 1965.
6. Starr, V. P., and P. A. Gilman, On the structure and energetics of large scale hydromagnetic disturbances in the solar photosphere, *Tellus*, **17**, 334–340, 1965.
7. Gilman, P. A., Hydromagnetic model for the solar general circulation, Ph.D. thesis, Department of Meteorology, M. I. T., June 1966. Also as Scientific Report #1, Contract AF19 (628)-5816, Planetary Circulations Project, Department Meteorology, M. I. T., 211 pp.
8. Starr, V. P., and P. A. Gilman, Hydromagnetic energy balance equations for the solar atmosphere, *Pure and Applied Geophys.*, **64**, 145–155, 1966.
9. Gilman, P. A., Stability of baroclinic flows in a zonal magnetic field, Part I, *Journal of the Atmospheric Sciences*, **24**, 101–118, 1967.
10. Gilman, P. A., Stability of baroclinic flows in a zonal magnetic field, Part II, *Journal of the Atmospheric Sciences*, **24**, 119–129, 1967.
11. Gilman, P. A., Stability of baroclinic flows in a zonal magnetic field, Part III, *Journal of the Atmospheric Sciences*, **24**, 130–143, 1967.
12. Gilman, P. A., Stability of a continuous baroclinic flow in a zonal magnetic field, *Journal of the Atmospheric Sciences*, **24**, 333–336, 1967.
13. Gilman, P. A., Thermally driven Rossby-mode dynamo for solar magnetic field reversals, *Science*, **160**, 760–763, 1968.
14. Gilman, P. A., and E. R. Benton, The influence of axial magnetic field on the steady linear Ekman boundary layer, *Physics of Fluids*, **11**, 2397–2401, 1968.

15. Starr, V. P., and P. A. Gilman, The circulation of the sun's atmosphere, *Scientific American*, **218**, 100–113, 1968.
16. Coffey, H. E., and P. A. Gilman, Sunspot motion statistics for 1965–1967, *Solar Physics*, **9**, 423–426, 1969.
17. Gilman, P. A., A Rossby-wave dynamo for the sun: Part I, *Solar Physics*, **8**, 316–330, 1969.
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19. Gilman, P. A., Baroclinic, Alfven, and Rossby waves in geostrophic flow, *Journal of the Atmospheric Sciences*, **26**, 1003–1009, 1969.
20. Davies-Jones, R., and P. A. Gilman, On large scale solar convection, *Solar Physics*, **12**, 3–22, 1970.
21. Gilman, P. A., Instability of magnetohydrostatic stellar interiors from magnetic buoyancy, I, *Astrophysical Journal*, **162**, 1019–1029, 1970.
22. Davies-Jones, R., and P. A. Gilman, Convection in a rotating annulus uniformly heated from below, *Journal of Fluid Mechanics*, **46**, 65–82, 1971.
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39. Gilman, P. A., Nonlinear dynamics of Boussinesq convection in a deep rotating spherical shell, III, Effects of velocity boundary conditions, *Geophysical and Astrophysical Fluid Dynamics*, **11**, 181–204, 1978.
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75. Gilman, P. A., and E. E. DeLuca, Dynamo theory for the sun and stars, in *Cool Stars, Stellar Systems, and the Sun*, (M. Zeilik and D. M. Gibson, eds.), Lecture Notes in Physics, Springer Verlag Publishing Company, Berlin, Germany, 163–172, 1986.
76. Gilman, P. A., and R. Howard, Rotation and expansion within sunspot groups, *Astrophysical Journal*, **303**, 480–485, 1986.
77. Gilman, P. A., and J. Miller, Nonlinear convection of a compressible fluid in a rotating spherical shell, *Astrophysical Journal Supplements*, **61**, 585–608, 1986.
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100. Gilman, P. A., Fluid dynamics and MHD of the solar convection zone and tachocline: Current understanding and unsolved problems, *Proceedings of SOHO-9 Workshop* (text of invited introductory talk), *Solar Physics*, **192**, 27–48, 2000.
101. Gilman, P. A., Magnetohydrodynamic ‘shallow water’ equations for the solar tachocline, *Astrophysical Journal Letters*, **544**, L79–L82, 2000.
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