Lee Phillips

Education	Ph.D., Dartmouth College, Hanover, NH, 1987: theoretical physics.
	B.A., Hampshire College, Amherst, MA, 1980: physics, mathematics, music.
	Diploma, Stuyvesant High School, New York, NY, 1976.

Employment	Freelance writer and consultant, 2011 – present.
	Research Physicist, 1989 – 2011, Naval Research Laboratory, Washington, DC.
	Postdoctoral Research Associate, 1987 – 1989, Dartmouth College (under Prof. David Montgomery).
	Teaching Assistant (Physics), Dartmouth College, 1982 – 1987.
	Teaching Assistant (Math), Hampshire College, 1977 – 1980.
	Short-term (summer, etc.) jobs, 1970 – 1981: guard, proofreader, bicycle messenger, copy editor, bookkeeper, dishwasher, high school math teacher, community college math teacher.

Experience, Skills, & Awards	Large-scale, parallel simulation of plasmas, fluids, and molecular dynamics.
	Fluid and MHD theory.
	Major contributor to multiple grant proposals resulting in funding of large, multi-year physics projects.
	Julia programming.
	Scientific communication: numerous popular science and computing articles in major publications.
	Science outreach and education: organize programs and maintain website for planetarium organization.
	Analysis and visualization of massive datasets from simulations using Fortran and Scientific Python.
	Development of novel analytical techniques for studying fluids, magnetohydrodynamics, object tracking, and shocks and detonations in crystals.
	Linux workstation and server administration.
	Website programming using Python, Django, and PostgreSQL.
	Numerous Research Publication Awards and Merit Awards from NRL.
	Regular presenter at international conferences.
	Fortran and C on massively parallel supercomputers.
	Dartmouth Graduate Fellowship.
	Dartmouth Postdoctoral Research Fellowship.

Service	Member of the Board of Directors of the Friends of Arlington's Planetarium.
	Reviewer of submissions to physics journals.
	Mentor to high school scientists in NRL's Science and Engineering Apprentice Program.
	Judge for the Sigma Xi Pure Science Award.
	Create and host dynamic websites for nonprofit organizations.
	Contribute to open source software projects

Selected Publications

Popular Science

Mar. 2016. Mathematics Meets Music. In: *Ars Technica*. URL: http://arstechnica.com/science/2016/03/mathematics-meets-music/.

Aug. 2014. The never-ending conundrums of classical physics. In: *Ars Technica*. URL: http://arstechnica.com/science/2014/08/the-never-ending-conundrums-of-classical-physics/.

2018b. Fast as Fortran, Easy as Python. In: *Linux Pro Magazine*. URL: https://www.admin-magazine.com/Archive/2019/50/Julia-Fast-as-Fortran-easy-as-Python.

May 2014. Scientific computing's future. In: *Ars Technica*. URL: http://arstechnica.com/science/2014/05/scientific-computings-future-can-any-coding-language-top-a-1950s-behemoth/ (visited on 10/10/2018).

Dec. 2020. A new release for GNU Octave. In: *LWN*. URL: https://lwn.net/Articles/840050/.

Feb. 2024. Gnuplot v6 comes with pie. In: *LWN*.

Jan. 2024. Julia v1.10: Performance, a new parser, and more. In: *LWN*.

Dec. 2015. General relativity: 100 years of the most beautiful theory ever created. In: *Ars Technica*. URL: http://arstechnica.com/science/2015/12/general-relativity-100-years-of-the-most-beautiful-theory-ever-created/.

Oct. 2021. Digging into Julia's package system. In: *LWN*. URL: https://lwn.net/Articles/871490/.

Oct. 2021. What's coming in Julia 1.7. In: *LWN*. URL: https://lwn.net/SubscriberLink/871486/e4ae97b79d72bb25/.

Nov. 2021. Concurrency in Julia. In: *LWN*. URL: https://lwn.net/Articles/875367/.

Mar. 2018. Let's Cut Our Losses on Fusion Energy. In: *The Progressive*. Syndicated op-ed carried in multiple newspapers. URL: http://progressive.org/op-eds/let-cut-our-losses-on-fusion-energy-180313/.

Nov. 2020. The Scientist's Linux Toolbox. In: *Linux Pro Magazine*. URL: https://www.linuxpromagazine.com/Issues/2020/241/Scientist-s-Toolbox.

May 2015. The female mathematician who changed the course of physics — but couldn't get a job. In: *Ars Technica*. URL: http://arstechnica.com/science/2015/05/the-female-mathematician-who-changed-the-course-of-physics-but-couldnt-get-a-job/.

Mar. 2015. A Dozen Science Destinations. In: *Northern Virginia Magazine* 10, pp. 50–53. URL: http://www.northernvirginiamag.com.

Jan. 2015. Have a scientific problem? Steal an answer from nature. In: *Ars Technica*. URL: http://arstechnica.com/science/2015/01/have-a-scientific-problem-steal-an-answer-from-nature/.

Books

2023. *Practical Julia*. No Starch Press. ISBN: 9781718502765.

Feb. 2012. *gnuplot Cookbook*. Packt Publishing. ISBN: 184951724X. URL: http://www.amazon.com/gp/product/184951724X.

Sept. 2024. *Einstein's Tutor. The Story of Emmy Noether and the Invention of Modern Physics*. PublicAffairs. ISBN: 1541702956.

2020e. *Gnuplot 5*. Alogus Publishing. ISBN: 978-0-692-92716-8.

Book Chapters

Nov. 2018. Solar Energy. In: *Managing Global Warming*. Ed. by Trevor Letcher. Ch. 9. Elsevier. ISBN: 9780128141045. URL: https://www.elsevier.com/books/managing-global-warming/letcher/978-0-12-814104-5.

Refereed Scientific Papers

1999 (with et al.). New Target Designs for Direct-Drive ICF. In: *Laser and Particle Beams* 17, p. 225.

1988 (with David Montgomery). Minimum Dissipation Rates in Magnetohydrodynamics. In: *Phys. Rev. A* 38, pp. 2953–2963. DOI: 10.1103/PhysRevA.38.2953.

2000 (with A. L. Velikovich). Richtmyer-Meshkov-like instabilities and early-time perturbation growth in laser targets and Z-pinch loads. In: *Phys. Plasmas* 7.5, pp. 1662–1671.

Feb. 2013 (with J. L. Weaver). Observation of Parameteric Instabilities in the Quarter Critical Density Region Driven by the Nike KrF Laser. In: *Phys. Plasmas* 20.

1996a. States of Minimum Dissipation in Magnetohydrodynamics: A Review. In: *J. Plasma Phys.* 56, pp. 531–551. DOI: 10.1017/S0022377800019450.

1995. Initiation of Detonations in Three-Dimensional Crystals with Defects. In: *J. Phys.: Cond. Matter* 7, pp. 7813–7822. DOI: 10.1088/0953-8984/7/40/012.

1996b (with A. Velikovich). Instability of a Plane Centered Rarefaction Wave. In: *Phys. Fluids* 8, pp. 1107–1118. DOI: 10.1063/1.868889.

May 2001 (with A. N. Mostovych et al.). Reflected shock experiments on the equation-of-state properties of liquid deuterium at 100-600 GPa (1-6 Mbar). In: *Phys. Plasmas* 8.5, pp. 2281–2286. DOI: 10.1063/1.1359444.

Recent Interviews

About solar energy on the Matt Townsend Show, Sirius XM Radio Ch. 143, May 16, 2017.

"Science 2.0" on G-Town Radio (Philadelphia), June 28, 2014.

How A Crappy User Interface Can Create A Privacy Nightmare, *Fast Company*, January 2014.