Curriculum vitae of Axel Brandenburg

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Address

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Education

Dr. Phil., University of Helsinki, May 1990, Doctoral dissertation: *Challenges for solar dynamo theory: α-effect, differential rotation and stability*, ISBN 952-90-1697-2

Lic. Phil., University of Helsinki, February 1989, Licentiate thesis: *Kinematic dynamo theory and the solar activity cycle*

Dipl. Phys., University of Hamburg, January 1986, Diploma thesis: *Hydrodynamics of convective bubbles in linear approximation*

Employment

Jan. 2007 – present:	Professor of Astrophysics, Stockholm Observatory, NORDITA, Stockholm
Aug. 2015 – May 2018:	Visiting Professor, University of Colorado, Boulder (LASP, APS, and JILA)
Jan. 2000 – Dec. 2006:	Professor of Astrophysics, NORDITA, Copenhagen
Feb. 1996 – Dec. 2000:	Professor of Applied Mathematics, University of Newcastle upon Tyne
Dec. 1994 – Jan. 1996:	Nordic Assistant Professor, Nordita, Copenhagen
Dec. 1992 – Nov. 1994:	Postdoctoral Research Fellow, High Altitude Observatory/NCAR, Boulder
Mar. 1992	Docent of Astronomy, University of Helsinki
Aug. 1992 – Nov. 1992:	Visiting Fellowship, University of Cambridge
Sep. 1990 – Aug. 1992:	Postdoctoral Research Fellow, Nordita, Copenhagen

Publications

Below the numbers of publications (published or in print) and the h indexes (from Web of science, ResearcherID: I-6668-2013), the Astrophysical Data Service (ADS), and Google Scholar (GS); see also:
http://www.nordita.org/~brandenb/papers/pub/pub.html

Number of papers in refereed journals: 377 + 12 submitted
Number of invited conference reviews: 38
Number of communications to scientific meetings: 85
Total number of citations: 12894, h-index 56 (on Web of Science); 13947, h-index 57 (ADS); and 19381, h-index: 67 (on Google Scholar)

Influential papers

The second column refers to the paper number in the full list of publications,
http://www.nordita.org/~brandenb/pub/node1.html
Citations are from Web of Science (WoS), Astrophysical Data Service (ADS), and Google Scholar (GS).

		citations		
paper:	#	WoS	ADS	GS
Brandenburg & Subramanian (2005)	A.153	801	888	1197
Beck, Brandenburg et al. (1996)	A.58	673	730	995
Brandenburg et al. (1995)	A.44	611	637	891
Brandenburg (2001)	A.98	357	385	548
Brandenburg (2005)	A.145	226	254	329
Haugen, Brandenburg, & Dobler (2004)	A.133	195	213	274
Saar & Brandenburg (1999)	A.90	189	215	277
Nordlund, Brandenburg, et al. (1992)	A.22	200	205	271
Brandenburg et al. (1996)	A.52	174	179	237
Brandenburg, Enqvist, & Olesen (1996)	A.54	161	179	238
Brandenburg et al. (1989)	A.3	162	166	202
Dobler, Brandenburg, & Stix (2006)	A.159	140	154	213
Brandenburg & Dobler (2002)	A.111	136	141	192
Korpi, Brandenburg, et al. (1999)	A.82	114	145	186
Blackman & Brandenburg (2002)	A.115	125	139	171
Rüdiger & Brandenburg (1995)	A.41	136	128	168
Pudritz et al. (2007)	B.25	—	209	146

PhD students

Stephen J. Brooks:	1996–2000	(Newcastle upon Tyne)
Alberto Bigazzi:	1996–2000	(Newcastle upon Tyne and L'Aquila, Rome)
Maarit J. Korpi:	1997–1999	(Oulu U)
Nils E. L. Haugen	2000–2004	(Trondheim, NTNU)
Tarek A. Yousef	2000–2004	(Trondheim, NTNU)
Antony J. Mee	2002–2006	(Newcastle upon Tyne, co-supervisor)
Simon Candelaresi	2009–2012	(Stockholm U, Phil. Lic. in Feb. 2011)
Fabio Del Sordo	2009–2012	(Stockholm U, Phil. Lic. in Feb. 2011)
Koen Kemel	2009–2012	(Stockholm U, Phil. Lic. in Aug 2011)
Jörn Warnecke	2009–2013	(Stockholm U, Phil. Lic. in May 2011)
Sarah Jabbari	2012–2016	(Stockholm U, Phil. Lic. in May 2014)
Xiang-Yu Li	2014–2018	(Stockholm U, Phil. Lic. in May 2016)
Illa R. Losada	2013–	(Stockholm U, Phil. Lic. in Dec 2014)
Alberto Roper Pol	2017–	(University of Colorado)

Teaching experience

- *Search for Life in the Universe* (44 hours) at CU-Boulder, for non-science majors (2017, spring+fall)
- *Fluid Instabilities, Waves, & Turbulence* (44 hours) at CU-Boulder, graduate level (2016)
- *Solar & Space Physics* (44 hours) at CU-Boulder, upper undergraduate level (2016)
- *Astrophysical Fluid Dynamics* (7.5 ECTS) at Stockholm U, postgraduate level (2013)
- *Astrophysical Magnetohydrodynamics* (7.5 ECTS) at Stockholm U, master level (2012)
- *Solar Physics and Magnetohydrodynamics* (7.5 ECTS) at Stockholm U, postgraduate level (2009)
- *Pencil Code tutorials*, taught in Trieste (Italy, 2009) and Aussois (France, 2009)
- *Solar Physics*, (12 hours) at the IRF Kiruna (2005, 2006, 2007, 2008), postgraduate level
- *Planetary and Stellar Orbits*, (24 hours) at University of Newcastle upon Tyne (1998, 1999, 2000), second year students

– *Introduction to Astrophysical Fluids*, (24 hours) at University of Newcastle upon Tyne (1997, 1998, 1999), second year students

– *Fluid Flow and Cosmic Fluids*, (24 hours) at University of Newcastle upon Tyne (1997, 1998, 1999), third year students

– *Relativistic Fluid Dynamics and Visualization*, (24 hours) at Copenhagen University (1995/1996), shared with Åke Nordlund, postgraduate level

Notable recognition

Elected foreign member of the Royal Swedish Academy of Sciences (since 2014)

Major grants

- NSF Astronomy and Astrophysics Research Grants (AAG), "Collaborative research: A Comprehensive Theoretical Study of Cosmic Magnetic Fields their Origin, Evolution, and Signatures" 1615100, July 2016 – June 2019, $224.040K, as Co-I/Institutional PI (PI: Tina Kahniashvili, Carnegie Mellon University)
- Knut & Alice Wallenberg Foundation, "Bottlenecks for the growth of particles suspended in turbulent flows" January 2015 – December 2019, 44 MSEK = 4.67 M$, as Co-I
- Research Council of Norway, FRINATEK research grant "Particle transport and clustering in turbulent flows" 231444, July 2014 – June 2017, 7.25 MNOK (1.18 M$, as PI)
- VR breakthrough research grant, "Formation of active regions in the Sun" 2012-5797, January 2013 – December 2016, 4.2 MSEK (0.63 M$, as PI)
- VR project grant, "Turbulent dynamo simulation in a spherical shell segment" 621-2011-5076, January 2012 – December 2014, 1.65 MSEK (0.25 M$, as PI)
- ERC Advanced Grant, "Astrophysical Dynamos" No 227952, February 2009 – January 2014, 2.22 MEuro (2.8 M$, as PI)
- PPARC Research Grant, "Accretion Discs and Jets" PPA/G/S/1997/00284, 1998 – 2001, 270 kGBP (0.42 M$, as PI)

Fields of research

Astrophysical fluid dynamics, with emphasis on dynamo theory and turbulence theory; astrobiology, with emphasis on homochirality. Particular interests: solar and stellar activity, helioseismology, convection, differential rotation, galactic turbulence and magnetism, accretion discs, fractals in turbulence, relativistic hydrodynamics, early universe, magnetospheric physics.

Organization of conferences

Jun 2018 14th Pencil Code User Meeting (Boulder)
Jun 2015 Program on Origin, Evolution, and Signatures of Cosmological Magnetic Fields (Stockholm)
Oct 2012 12th European Workshop on Astrobiology (Stockholm)
Aug 2011 Program on Dynamo, Dynamical Systems and Topology (Stockholm)
May 2011 Program on Predictability + School on Data Assimilation (Stockholm)
Feb 2011 RädlerFest: α effect and beyond (Stockholm)
May 2010 Program on Turbulent combustion (Stockholm)

Sep 2009 Program on Solar and Stellar Cycles (Stockholm)
Mar 2008 Program on Turbulence and Dynamos (Stockholm)
Feb 2008 Program on the Origins of Homochirality (Stockholm)
Nov 2007 Joint Nordic and SwAN Astrobiology meeting (Stockholm)
Aug 2007 3rd Pencil Code User Meeting (Stockholm)
May 2007 New Trends in Radiation Hydrodynamics (Stockholm)
Jan 2006 NorFA Winter School on Astrobiology (Levitunturi, Finnish Lapland)
Jul 2005 Nordita Master Class in Physics (Hillerød)
Jan 2005 Astrobiology and Origins of Life (Copenhagen)
Jan 2005 Meeting on Nordic Science Outreach (Copenhagen)
Sep 2004 Cosmic Ray Dynamics: from Turbulent to Galactic Scale Magnetic Fields (Copenhagen)
Aug 2004 Astrobiological Problems for Physicists and Biologists (Turku, Finland)
Jan 2004 Astrobiological Problems for Physicists (Copenhagen)
Jul 2002 Nordita Master Class in Physics (Hillerød)
Jul 2001 Nordita Master Class in Physics (Hillerød)
Mar 2001 Dynamos in the Laboratory, Computer, and the Sky (Copenhagen)
Jul 2000 Nordita Master Class in Physics (Copenhagen)
Jan 2000 Physics of Accretion and Associated Outflows (Copenhagen)
May 1997 UK-MHD meeting (Newcastle, England)
Feb 1996 NorFA Winter School on Magnetic fields in Space and Astrophysics (Levitunturi, Finnish Lapland)

Invited participation in research programs

Feb 2011 Turbulence Theory, 1 month (Santa Barbara)
Jun 2008 Dynamo Theory, 1.5 month (Santa Barbara)
Nov 2007 Star Formation through Cosmic Time, 1 month (Santa Barbara)
Sep 2004 Magnetohydrodynamics of Stellar Interiors, 3 months (Cambridge)
Apr 2000 Astrophysical Turbulence, 3 months (Santa Barbara)
Jun 2002 Dynamo Theory, 3 weeks (Aspen)
Jan 2002 Solar Magnetism and Related Astrophysics, 3 months (Santa Barbara)
Jan 1998 Dynamics of Astrophysical Discs, 3 months (Cambridge)
Aug 1992 Dynamo Theory, 3 months (Cambridge)

Memberships

Finnish Physical Society (since 1988)
International Astronomical Union (since 1990)
American Physical Society (since 1996)
European Astrobiology Network Association (since 2005)
European Physical Society (since 2011)
Member of the Royal Swedish Academy of Sciences (Astronomy and Spacescience, 2014)

Other academic activities

I am frequently consulted as a referee for the following journals: Astrophysical Journal, Astronomy & Astrophysics, Geophysical and Astrophysical Fluid Dynamics, Journal of Fluid Mechanics, Monthly Notices of the Royal Astronomical Society, Physical Review (PRL, PRED, and PRE), Physics of Plasmas, Journal of Computational Physics, Journal of Fluid Mechanics, Geophysical & Astrophysical Fluid Dynamics, New Journal of Physics. On the average my load on reviewing papers is 3 per month.

I am also regularly asked to review research proposals (NSF, PPARC, DFG, SA, ERC, NRC, VR, Hong Kong, Portugal, Austria) and to examine PhD theses (Finland, Sweden, Denmark, England, Germany, France, India, South Africa). I have been an external panel member for the selection of post-docs (Finnish

Academy; suomen akatemia, SA), major research grants (Deutsche Forschungsgesellschaft, DFG), and observing time (European Southern Observatories, ESO).

Administrative experience

2010–present	Editorial Board Member of Astron. Nachr.
2010–2015	Deputy director of Nordita
2008–2015	Chairman of the Swedish Astrobiology Network
2007–2009	Member of the AlbaNova/Nordita colloquium committee
2001	Director of the Helmholtz Summer School, Potsdam
2000–2002	Director of the Nordita Master Class

Other merits

Together with Wolfgang Dobler, I initiated the Pencil Code in 2001, which is a public domain program for solving partial differential equations on massively parallel supercomputers. During 2008–2015 it was hosted through the subversion repository on Google Code, `http://pencil-code.googlecode.com/`, and since 2015 it is hosted through `https://github.com/pencil-code`.

Public Outreach Experience

2014	Article in Fysikaktuellt: Sökandet efter en ny teori för solfläckar
2010	Interview "Cycles of the Sun" (British Publishers) (`http://www.nordita.org/~brandenb/Solar_Activity_10.pdf`)
2008	Podcast *Is All Life Left-Handed?* (`http://www.astrobio.net/amee/summer_2008/Radio/radio.php`)
2005	Organizer of Meeting on Nordic Science Outreach (Copenhagen)
2005	Co-authored outreach articles with Anja Andersen (Kvant and BioZoom)
1990	Extended interview in Finnish Television (Prisma program, YLE)

Language skills

Native: German
Fluent: English and Finnish
Basic knowledge: Swedish

Publications

A. Publications in refereed journals

(Highly quoted papers are denoted by an asterisk)

Submitted:

390. Li, X.-Y., Mehlig, B., Svensson, G., Brandenburg, A., & Haugen, N. E. L.: 2018, "Fluctuations and growth histories of cloud droplets: superparticle simulations of the collision-coalescence process," *Quart. J. Roy. Met. Soc.*, submitted (arXiv:1810.07475)

389. Singh, N. K., Raichur, H., Käpylä, M. J., Rheinhardt, M., Brandenburg, A., & Käpylä, P. J.: 2018, "f-mode strengthening from a localized bipolar subsurface magnetic field," *Geophys. Astrophys. Fluid Dyn.*, submitted (arXiv:1808.08904)

388. Schober, J., Brandenburg, A., & Rogachevskii, I.: 2018, "Chiral fermion asymmetry in high-energy plasma simulations," *Geophys. Astrophys. Fluid Dyn.*, submitted (arXiv:1808.06624)

387. Li, X.-Y., Brandenburg, A., Svensson, G., Haugen, N. E. L., Mehlig, B., & Rogachevskii, I.: 2018, "Condensational and collisional growth of cloud droplets in a turbulent environment," *J. Atmosph. Sci.*, submitted (arXiv:1807.11859)

386. Brandenburg, A., Bracco, A., Kahniashvili, T., Mandal, S., Roper Pol, A., Petrie, G. J. D., Singh, N. K.: 2018, "E and B polarizations from inhomogeneous and solar surface turbulence," *Astrophys. J.*, submitted (arXiv:1807.11457)

385. Bracco, A., Candelaresi, S., Del Sordo, F., & Brandenburg, A.: 2018, "Is there a left-handed magnetic field in the solar neighborhood? Exploring helical magnetic fields in the interstellar medium through dust polarization power spectra," *Astron. Astrophys.*, submitted (arXiv:1807.10188)

384. Käpylä, P. J., Gent, F. A., Olspert, N., Käpylä, M. J., & Brandenburg, A.: 2018, "Sensitivity to luminosity, centrifugal force, and boundary conditions in spherical shell convection," *Geophys. Astrophys. Fluid Dyn.*, submitted (arXiv:1807.09309)

383. Roper Pol, A., Brandenburg, A., Kahniashvili, T., Kosowsky, A., Mandal, S.: 2018, "The timestep constraint in solving the gravitational wave equations sourced by hydromagnetic turbulence," *Geophys. Astrophys. Fluid Dyn.*, submitted (arXiv:1807.05479)

382. Käpylä, P. J., Viviani, M., Käpylä, M. J., & Brandenburg, A.: 2018, "Effects of a subadiabatic layer on convection and dynamos in spherical wedge simulations," *Geophys. Astrophys. Fluid Dyn.*, submitted (arXiv:1803.05898)

381. Giampapa, M. S., Cody, A. M., Brandenburg, A., Skiff, B. A., & Hall, J. C.: 2018, "The rotation and chromospheric activity of the solar-type stars in the open cluster M67," *Astrophys. J.*, submitted

380. Brandenburg, A., Kahniashvili, T., Mandal, S., Roper Pol, A., Tevzadze, A. G., & Vachaspati, T.: 2018, "The dynamo effect in decaying helical turbulence," *Phys. Rev. Fluids*, submitted (arXiv:1710.01628)

In press:

379. Bourdin, Ph.-A., & Brandenburg, A.: 2018, "Magnetic helicity from multipolar regions on the solar surface," *Astrophys. J.*, in press (arXiv:1804.04160)

378. Bourdin, Ph.-A., Singh, N. K., & Brandenburg, A.: 2018, "Magnetic helicity reversal in the corona at small plasma beta," *Astrophys. J.*, in press (arXiv:1804.04153)

377. Losada, I. R., Warnecke, J., Brandenburg, A., Kleeorin, N., & Rogachevskii, I.: 2018, "Magnetic bipoles in rotating turbulence with coronal envelope," *Astron. Astrophys.*, in press (arXiv:1803.04446)

Published, but so far only with DOI number:

376. Li, X.-Y., Svensson, G., Brandenburg, A., & Haugen, N. E. L.: 2018, "Cloud droplet growth due to supersaturation fluctuations in stratiform clouds," *Atmosph. Chem. Phys.*, DOI: 10.5194/acp-2018-644 (arXiv:1806.10529)

375. Schober, J., Brandenburg, A., Rogachevskii, I., & Kleeorin, N.: 2018, "Energetics of turbulence generated by chiral MHD dynamos," *Geophys. Astrophys. Fluid Dyn.*, DOI: 10.1080/03091929.2018.1515313 (arXiv:1803.06350)

Published:

374. Rogachevskii, I., Kleeorin, N., & Brandenburg, A.: 2018, "Compressibility effects in turbulent MHD and passive scalar transport: mean-field theory," *J. Plasma Phys.* **84**, 735840502

373. Li, X.-Y., Brandenburg, A., Svensson, G., Haugen, N. E. L., Mehlig, B., & Rogachevskii, I.: 2018, "Effect of turbulence on collisional growth of cloud droplets," *J. Atmosph. Sci.* **75**, 3469–3487

372. Viviani, M., Warnecke, J., Käpylä, M. J., Käpylä, P. J., Olspert, N., Cole-Kodikara, E. M., Lehtinen, J. J., & Brandenburg, A.: 2018, "Transition from axi- to nonaxisymmetric dynamo modes in spherical convection models of solar-like stars," *Astron. Astrophys.* **616**, A160

371. Brandenburg, A.: 2018, "Advances in mean-field dynamo theory and applications to astrophysical turbulence," *J. Plasma Phys.* **84**, 735840404

370. Singh, N. K., Käpylä, M. J., Brandenburg, A., Käpylä, P. J., Lagg, A., & Virtanen, I.: 2018, "Bihelical spectrum of solar magnetic helicity and its evolution," *Astrophys. J.* **863**, 182

369. Brandenburg, A., Durrer, R., Kahniashvili, T., Mandal, S., & Yin, W. W.: 2018, "Statistical properties of scale-invariant helical magnetic fields and applications to cosmology," *J. Cosmol. Astropart. Phys.* **08**, 034

368. Zhang, H., & Brandenburg, A.: 2018, "Solar kinetic energy and cross helicity spectra," *Astrophys. J. Lett.* **862**, L17

367. Brandenburg, A., Haugen, N. E. L., Li, X.-Y., & Subramanian, K.: 2018, "Varying the forcing scale in low Prandtl number dynamos," *Mon. Not. Roy. Astron. Soc.* **479**, 2827–2833

366. Käpylä, P. J., Käpylä, M. J., & Brandenburg, A.: 2018, "Small-scale dynamos in simulations of stratified turbulent convection," *Astron. Nachr.* **339**, 127–133

365. Brandenburg, A., & Chatterjee, P.: 2018, "Strong nonlocality variations in a spherical mean-field dynamo," *Astron. Nachr.* **339**, 118–126

364. Schober, J., Rogachevskii, I., Brandenburg, A., Boyarsky, A., Fröhlich, J., Ruchayskiy, O., & Kleeorin, N.: 2018, "Laminar and turbulent dynamos in chiral magnetohydrodynamics. II. Simulations," *Astrophys. J.* **858**, 124

363. Bushby, P. J., Käpylä, P. J., Masada, Y., Brandenburg, A., Favier, B., Guervilly, C., & Käpylä, M. J.: 2018, "Large-scale dynamos in rapidly rotating plane layer convection," *Astron. Astrophys.* **612**, A97

362. Brandenburg, A., & Giampapa, M. S.: 2018, "Enhanced stellar activity for slow antisolar differential rotation?" *Astrophys. J. Lett.* **855**, L22

361. Perri, B., & Brandenburg, A.: 2018, "Spontaneous flux concentrations from the negative effective magnetic pressure instability beneath a radiative stellar surface," *Astron. Astrophys.* **609**, A99

360. Warnecke, J., Rheinhardt, M., Käpylä, P. J., Käpylä, M. J., & Brandenburg, A.: 2018, "Turbulent transport coefficients in spherical wedge dynamo simulations of solar-like stars," *Astron. Astrophys.* **609**, A51

359. Brandenburg, A., Kahniashvili, T., Mandal, S., Roper Pol, A., Tevzadze, A. G., & Vachaspati, T.: 2017, "Evolution of hydromagnetic turbulence from the electroweak phase transition," *Phys. Rev. D* **96**, 123528

358. Kahniashvili, T., Brandenburg, A., Durrer, R., Tevzadze, A. G., & Yin, W.: 2017, "Scale-invariant helical magnetic field evolution and the duration of inflation," *J. Cosmol. Astropart. Phys.* **12**, 002

357. Singh, N. K., Rogachevskii, I., & Brandenburg, A.: 2017, "Enhancement of small-scale turbulent dynamo by large-scale shear," *Astrophys. J. Lett.* **850**, L8

356. Brandenburg, A., Schober, J., & Rogachevskii, I.: 2017, "The contribution of kinetic helicity to turbulent magnetic diffusivity," *Astron. Nachr.* **338**, 790–793

355. Rogachevskii, I., Ruchayskiy, O., Boyarsky, A., Fröhlich, J., Kleeorin, N., Brandenburg, A., & Schober, J.: 2017, "Laminar and turbulent dynamos in chiral magnetohydrodynamics. I. Theory," *Astrophys. J.* **846**, 153

354. Cameron, R. H., Dikpati, M., & Brandenburg, A.: 2017, "The global solar dynamo," *Spa. Sci. Rev.* **210**, 367–395

353. Käpylä, P. J., Rheinhardt, M., Brandenburg, A., Arlt, R., Käpylä, M. J., Lagg, A., Olspert, N., & Warnecke, J.: 2017, "Extended subadiabatic layer in simulations of overshooting convection," *Astrophys. J. Lett.* **845**, L23

352. Brandenburg, A., Schober, J., Rogachevskii, I., Kahniashvili, T., Boyarsky, A., Fröhlich, J., Ruchayskiy, O., & Kleeorin, N.: 2017, "The turbulent chiral magnetic cascade in the early universe," *Astrophys. J. Lett.* **845**, L21

351. Brandenburg, A., Ashurova, M. B., & Jabbari, S.: 2017, "Compensating Faraday depolarization by magnetic helicity in the solar corona," *Astrophys. J. Lett.* **845**, L15

350. Brandenburg, A., Mathur, S., & Metcalfe, T. S.: 2017, "Evolution of coexisting long and short period stellar activity cycles," *Astrophys. J.* **845**, 79

349. Li, X.-Y., Brandenburg, A., Haugen, N. E. L., & Svensson, G.: 2017, "Eulerian and Lagrangian approaches to multidimensional condensation and collection," *J. Adv. Model. Earth Syst.* **9**, 1116–1137

348. Jabbari, S., Brandenburg, A., Kleeorin, N., & Rogachevskii, I.: 2017, "Sharp magnetic structures from dynamos with density stratification," *Mon. Not. Roy. Astron. Soc.* **467**, 2753–2765

347. Käpylä, P. J., Käpylä, M. J., Olspert, N., Warnecke, J., & Brandenburg, A.: 2017, "Convection-driven spherical shell dynamos at varying Prandtl numbers," *Astron. Astrophys.* **599**, A4

346. Brandenburg, A.: 2017, "Analytic solution of an oscillatory migratory α^2 stellar dynamo," *Astron. Astrophys.* **598**, A117

345. Brandenburg, A., Petrie, G. J. D., & Singh, N. K.: 2017, "Two-scale analysis of solar magnetic helicity," *Astrophys. J.* **836**, 21

344. Brandenburg, A., & Kahniashvili, T.: 2017, "Classes of hydrodynamic and magnetohydrodynamic turbulent decay," *Phys. Rev. Lett.* **118**, 055102

343. Brandenburg, A., Rogachevskii, I., & Kleeorin, N.: 2016, "Magnetic concentrations in stratified turbulence: the negative effective magnetic pressure instability," *New J. Phys.* **18**, 125011

342. Warnecke, J., Käpylä, P. J., Käpylä, M. J., & Brandenburg, A.: 2016, "Influence of a coronal envelope as a free boundary to global convective dynamo simulations," *Astron. Astrophys.* **596**, A115

341. Singh, N. K., Raichur, H., & Brandenburg, A.: 2016, "High-wavenumber solar f-mode strengthening prior to active region formation," *Astrophys. J.* **832**, 120

340. Brandenburg, A.: 2016, "Stellar mixing length theory with entropy rain," *Astrophys. J.* **832**, 6

339. Cole, E., Brandenburg, A., Käpylä, P. J., & Käpylä, M. J.: 2016, "Robustness of oscillatory α^2 dynamos in spherical wedges," *Astron. Astrophys.* **593**, A134

338. Kahniashvili, T., Brandenburg, A., & Tevzadze, A. G.: 2016, "The evolution of primordial magnetic fields since their generation," *Phys. Scr.* **91**, 104008

337. Bhat, P., Subramanian, K., & Brandenburg, A.: 2016, "A unified large/small-scale dynamo in helical turbulence," *Mon. Not. Roy. Astron. Soc.* **461**, 240–247

336. Jabbari, S., Brandenburg, A., Mitra, D., Kleeorin, N., & Rogachevskii, I.: 2016, "Turbulent reconnection of magnetic bipoles in stratified turbulence," *Mon. Not. Roy. Astron. Soc.* **459**, 4046–4056

335. Warnecke, J., Losada, I. R., Brandenburg, A., Kleeorin, N., & Rogachevskii, I.: 2016, "Bipolar region formation in stratified two-layer turbulence," *Astron. Astrophys.* **589**, A125

334. Käpylä, M. J., Käpylä, P. J., Olspert, N., Brandenburg, A., Warnecke, J., Karak, B. B., & Pelt, J.: 2016, "Multiple dynamo modes as a mechanism for long-term solar activity variations," *Astron. Astrophys.* **589**, A56

333. Käpylä, P. J., Brandenburg, A., Kleeorin, N., Käpylä, M. J., & Rogachevskii, I.: 2016, "Magnetic flux concentrations from turbulent stratified convection," *Astron. Astrophys.* **588**, A150

332. Yokoi, N., & Brandenburg, A.: 2016, "Large-scale flow generation by inhomogeneous helicity," *Phys. Rev. E* **93**, 033125

331. Zhang, H., Brandenburg, A., & Sokoloff, D. D.: 2016, "Evolution of magnetic helicity and energy spectra of solar active regions," *Astrophys. J.* **819**, 146

330. Brandenburg, A.: 2016, "A new twist in simulating solar flares," *Physics* **9**, 26

329. Bhat, P., & Brandenburg, A.: 2016, "Hydraulic effects in a radiative atmosphere with ionization," *Astron. Astrophys.* **587**, A90

328. Karak, B. B., & Brandenburg, A.: 2016, "Is the small-scale magnetic field correlated with the dynamo cycle?" *Astrophys. J.* **816**, 28

327. Miesch, M., Matthaeus, W., Brandenburg, A., Petrosyan, A., Pouquet, A., Cambon, C., Jenko, F., Uzdensky, D., Stone, J., Tobias, S., Toomre, J., & Velli, M.: 2015, "Large-eddy simulations of magnetohydrodynamic turbulence in space and astrophysics," *Spa. Sci. Rev.* **194**, 97–137

326. Andrievsky, A., Brandenburg, A., Noullez, A., & Zheligovsky, V.: 2015, "Negative magnetic eddy diffusivities from the test-field method and multiscale stability theory," *Astrophys. J.* **811**, 135

325. Jabbari, S., Brandenburg, A., Kleeorin, N., Mitra, D., & Rogachevskii, I.: 2015, "Bipolar magnetic spots from dynamos in stratified spherical shell turbulence," *Astrophys. J.* **805**, 166

324. Karak, B. B., Kitchatinov, L. L., & Brandenburg, A.: 2015, "Hysteresis between distinct modes of turbulent dynamos," *Astrophys. J.* **803**, 95

323. Karak, B. B., Käpylä, M. J., Käpylä, P. J., Brandenburg, A., Olspert, N., & Pelt, J.: 2015, "Magnetically controlled stellar differential rotation near the transition from solar to anti-solar profiles," *Astron. Astrophys.* **576**, A26

322. Brandenburg, A., Kahniashvili, T., & Tevzadze, A. G.: 2015, "Nonhelical inverse transfer of a decaying turbulent magnetic field," *Phys. Rev. Lett.* **114**, 075001

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