

Curriculum Vitae

Name: Nobumitsu YOKOI
 Birth: 19 January 1961
 Gender: Male
 Present title: Visiting Research Fellow
 at the Earth and Planetary Science, University of Tokyo
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Education:

March 1984 Bachelor of Law (Political Philosophy) University of Tokyo
 March 1988 Bachelor of Science (Physics) University of Tokyo
 March 1995 PhD (Physics) University of Tokyo
 “Relationship of pseudoscalar invariants with the sustainment of global structures in hydrodynamic and magnetohydrodynamic turbulence”

Career:

April 1995 Research Associate, Institute of Industrial Science (IIS), University of Tokyo
 April 2007-March 2026 Assistant/Research Professor, IIS, Univ. Tokyo
 April 2026-Present Visiting Research Fellow, Earth and Planetary Science, Univ. Tokyo
 Also:
 April 1994-March 1995 Research Fellow, Japan Society for the Promotion of Science
 April 2002-Present Lecturer, Department of Physics, Chiba University
 April 2007-March 2008 Lecturer, Physics, Keio University
 April 2009-March 2014 Special Visiting Researcher at National Astronomical Observatory of Japan
 October 2009-Present Visiting Researcher at the Nordic Institute for Theoretical Physics (NORDITA)
 June-July 2010 Visiting Researcher at the Center for Turbulence Research (CTR) Program, Stanford/NASA Ames
 April 2012-March 2017 Lecturer, Department of Physics, Chuo University
 September 2012 Lecturer on Turbulence at Institute of Theoretical and Applied Physics (ITAP), Turunç-Marmaris, Turkey
 April 2016-Present Lecturer of Physics, Japan Open University
 April 2016-March 2018 PI of Japan–Russia Bilateral Project on Solar Physics (JSPS–RFBR): “Breakage of magneto-hydrodynamic turbulence as a source of solar cyclicity: Observational and theoretical aspects”
 June 2018 Lecturer on Turbulence, dynamo, and magnetic reconnection at International Centre for Mechanical Sciences (CISM), Udine, Italy
 September 2022-Present Visiting Researcher at the Isaac Newton Institute, Univ. of Cambridge
 April 2026-Present Visiting Associate Professor at Institute of Fluid Science, Tohoku Univ.

Membership of Society:

Physical Society of Japan (JPS), American Geophysical Union (AGU), European Geosciences Union (EGU), EuroMech

Award Committee Member etc.:

October 2012-September 2015, Executive and Award Committee of the Plasma Physics Division of the Physical Society of Japan
 January 2017-December 2018 AGU Space Physics and Aeronomy Space Weather and Nonlinear Processes Award Selection Committee
 January 2024-January 2026 AGU Nonlinear Geophysics Turcotte Award Selection Committee
 Habilitation (HDR) (Professorship Defence) Jury Committee Member:
 5 December 2022 Ecole Centrale de Lyon
 Full-Professorship Assessment Committee Member:
 April-May 2024 Applied Mathematics and Statistics, University of Exeter

Awards:

December 2008, Top Scientist Award, Foundation for the Promotion of Industrial Science, “Modelling of solar winds based on the statistical theory of inhomogeneous turbulence”

July 2016, Grand Prix Award at Research Competition at IIS, Univ. of Tokyo, “Nonlinear dynamo model for solar-activity”

March 2026, CNRS-UTokyo Ph.D. Joint Program, "ETHEREAL : synErgisTic cHaractERization of the Energy trAnsfer in pLAsmas"

Main Papers:

- N. Yokoi and A. Yoshizawa, “Statistical analysis of the effects of helicity in inhomogeneous turbulence,” *Phys. Fluids*, **5**, 464-477 (1993).
- A. Yoshizawa and N. Yokoi, “Turbulent magnetohydrodynamic dynamo for accretion disks using the cross-helicity effect,” *Astrophys. J.*, **407**, 540-548 (1993).
- N. Yokoi, “Large-scale magnetic fields in spiral galaxies viewed from the cross-helicity dynamo,” *Astron. Astrophys.*, **311**, 731-745 (1996).
- A. Yoshizawa, H. Kato, and N. Yokoi, “Mean field theory interpretation of solar polarity reversal,” *Astrophys. J.*, **537**, 1039-1053 (2000).
- N. Yokoi and F. Hamba, “An application of the turbulent magnetohydrodynamic residual-energy equation to the solar wind,” *Phys. Plasmas* **14**, 112904-1-16 (2007).
- N. Yokoi, R. Rubinstein, A. Yoshizawa, and F. Hamba, “A turbulence model for magnetohydrodynamic plasmas,” *J. Turbulence*, **9**, N37-1-25 (2008).
- N. Yokoi, “Modelling the turbulent cross-helicity evolution: Production, dissipation, and transport rates,” *J. Turbulence*, **12**, N27-1-33 (2011).
- N. Yokoi, “Cross helicity and related dynamos,” *Geophys. Astrophys. Fluid Dyn.*, **107**, 114-184 (2013).
- K. Higashimori, N. Yokoi, and M. Hoshino, “Explosive turbulent magnetic reconnection,” *Phys. Rev. Lett.*, **110**, 255001-1-5 (2013).
- N. Yokoi and A. Brandenburg, “Large-scale flow generation by inhomogeneous helicity,” *Phys. Rev. E*, **93**, 033125-1-14 (2016).
- N. Yokoi, “Electromotive force in strongly compressible magnetohydro-dynamic turbulence,” *J. Plasma Phys.*, **84**, 735840501-1-26 (2018).
- N. Yokoi, “Mass and internal-energy transports in strongly compressible magnetohydro-dynamic turbulence,” *J. Plasma Phys.*, **84**, 775840603-1-30 (2018).
- F. Widmer, J. Büchner, and N. Yokoi, “Analysis of fast turbulent reconnection with self-consistent determination of turbulence timescale,” *Phys. Plasmas*, **26**, 102112-1-8, (2019).
- N. Yokoi, Y. Masada, and T. Takiwaki, “Modelling stellar convective transport with plumes – I. Non-equilibrium turbulence effect in double-averaging formulation,” *Mon. Not. Roy. Astron. Soc.*, **516**, 2718-2735 (2022).
- N. Yokoi, “Non-Equilibrium turbulent transport in convective plumes obtained from closure theory,” *Atmosphere*, **14**, 01013-1-22 (2023).
- N. Yokoi and M. Miesch, “Kinetic helicity effects in stellar angular-momentum transport,” *Geophysical. Astrophysics. Fluid Dyn.*, **119**, 493-524 (2025).

Review Papers:

- A. Yoshizawa, S.-I. Itoh, K. Itoh, N. Yokoi, “Turbulence theory and modeling of fluids and plasmas,” *Plasma Phys. Control. Fusion*, **43**, R1-R144 (2001).
- A. Yoshizawa, S.-I. Itoh, K. Itoh, N. Yokoi, “Dynamics and MHD theory of turbulence suppression,” *Plasma Phys. Control. Fusion*, **46**, R25-R94 (2004).
- A. Pouquet and N. Yokoi, “Helical fluid and (Hall)-MHD turbulence: a brief review,” *Phil. Trans. R. Soc. A*, **380**: 20210087-1-18 (2022).
- N. Yokoi, “Unappreciated cross-helicity effects in plasma physics: Anti-diffusion effects in dynamo and momentum transport,” *Mod. Rev. Plasma Phys.* **7**, 33, pp. 1-98 (2023).

Books:

- N. Yokoi, et al. (Eds.) *Midare to Nagare: Flow and Turbulence*, (Baifu-kan Publisher, 2008) (in Japanese).
- N. Yokoi, “Turbulence, Transport and Reconnection” in MacTaggart, D. and Hillier, A. (Eds.) *Topics in Magnetohydrodynamic Topology, Reconnection and Stability Theory*, CISM International Centre for Mechanical Sciences 591, Chap. 6, pp. 177-265 (Springer, Heidelberg, 2020).
- N. Yokoi, “Transport in helical fluid turbulence,” in Kuzanyan, K., Yokoi, N., et al. (Eds.) *Helicities in Geophysics, Astrophysics, and Beyond*, AGU Books (Wiley, New York, 2024).