Jonas K. Nøland

CV

O. S. Bragstads plass 2E
7034 Trondheim
Norway
+47 913 587 59
+47 735 942 10
jonas.k.noland@ntnu.no
https://www.ntnu.edu/employees/jonas.k.noland
https://www.ntnu.edu/iel/groups/eme/view/about

Curriculum Vitae

Professional Experience

2018–current **Associate Professor**, *Norwegian University of Science and Technology*, Trondheim.
Dept. of Electric Power Engineering - Electrical Machines and Electromagnetics Group

2021–current **Associate Professor II**, *University of South-Eastern Norway (USN)*, Porsgrunn.
Dept. of Electrical engineering, Information Technology and Cybernetics

2017–2018 **Associate Professor**, *University of South-Eastern Norway (USN)*, Horten.
Dept. of Microsystems

2013–2017 **Assistant Professor**, *University College of Southeast Norway (USN)*, Horten.
Dept. of Engineering

Education

2017 **PhD**, *Uppsala University*, Uppsala (SE), *Science of Electricity, Eng. Physics.*.

2013 **MSc**, *Chalmers University of Technology*, Gothenburg (SE), *Electric Power Eng.*.

2011 **BSc**, *Norwegian Univ. of Life Sciences*, Ås (NO), *Energy & Environmental Physics*.

Membership of Scientific Societies

Member of IEEE (GS'14-M'17), IEEE Industrial Electronics Society (IES), IES Electric Machines Technical Committee, IEEE Transportation Electrification Community (TEC), IEEE Power and Energy Society (PES) and IEEE Industry Applications Society (IAS).

Commissions of Trust

2022–present **Chair**, *IEEE Power and Energy Society Norway Chapter*.

2020–current **Associate Editor**, *IEEE Transactions on Industrial Electronics (57 papers handled)*.

2019–current **Editor**, *IEEE Transactions on Energy Conversion (51 papers handled)*.

2019–2021 **Vice-Chair**, *IEEE Power and Energy Society Norway Chapter*.

2017–current **Board member**, *Norwegian Academic Committee of Publication in Technology - Electric Power Engineering*.

2017–current **Reviewer**, ***185*** *reviews in international journals including:*, **38** reviews for *IEEE Transactions on Industrial Electronics*, **19** reviews for *IEEE Transactions Energy Conversion*, **19** reviews for *IET Electr. Power Appl.*, **12** reviews for *IEEE Transactions Transportation Electrification*, **8** reviews for *IEEE Transactions on Industrial Informatics*, **6** reviews for *IET Gener., Transm. & Distrib.*, **4** reviews for *IET Power Electronics*, **3** reviews for *IEEE Access*, **3** reviews for *IET Renew. Power Gener.*, **2** reviews for *IEEE Transactions on Industry Applications*, **2** reviews for *IEEE J. Emerg. Sel. Top. Power Electronics*, etc..

Fellowships, Awards and Prizes

2013 **Gothia Power Technology Scholarship**, (now DNV-GL), *Gothenburg, Sweden*.

Organisation of Meetings

2020 **Special Session Co-Chair on Large Synchronous Machines**, *ICEM*, International Conference on Electrical Machines, *Gothenburg, Sweden*.

2020 **Student Forum Co-Chair**, *ICEM*, International Conference on Electrical Machines, *Gothenburg, Sweden*.

Supervision of Graduate Students and Research Fellows

3 PhD students (ongoing) and more than **10+** MSc students since 2018.

Institutional Responsibilities

June 2019 **Administrator**, *Norwegian University of Science and Technology*, PhD Dissertation (25.06.2019): "Design and Operation Investigations for large Converter-Fed Synchronous Machines in Hydropower Applications", *NTNU, Norway*.

Nov. 2018 **Expert Jury Member**, *Swiss Federal Institute of Technology*, PhD Dissertation (26.11.2018): "Electrical effects in windings of large electrical AC machines – Application to Advanced large size DFIG", *EPFL, Lausanne*.

Jan. 2018 **Administrator**, *University of South-Eastern Norway*, PhD Dissertation (31.01.2018): "Interdigital-Electrode Thin-Film Piezoelectric Micro-actuators", *USN, Norway*.

Teaching Activities

2019- **Course Coordinator**, *ELK22*, Design of Electromagnetic Devices, *NTNU, Norway*.

2019- **Lecturer and Course Coordinator**, *TET4110*, Electrical Machines and Electromagnetic Energy Conversion, *NTNU, Norway*.

2015-2018 **Lecturer and Course Coordinator**, *EMK-EA2000*, Electrical Machines and Power Electronics, *USN, Norway*.

Journal and Magazine Publications: Power Engineering

[1] F. Maurer, T. L. Toftevaag, **J. K. Nøland**, "An Analytical Prediction Model of Balanced and Unbalanced Faults in Doubly-Fed Induction Machines", *IEEE Trans. Ind. Electron.*, vol. PP, no. 99, pp. 1-11, Feb. 2022.

[2] **J. K. Nøland**, "Evolving Toward a Scalable Hyperloop Technology: Vacuum transport as a clean alternative to short-haul flights", *IEEE Electrific. Mag.*, vol. 9, no. 4, pp. 55-66, Dec. 2021.

[3] F. Maurer, **J. K. Nøland**, "A Differential Strand-Slot Inductance Model for Improved Compensation of Circulating Currents in the Core Part of Large AC Machines", *IEEE Trans. Energy Convers.*, vol. PP, no. 99, pp. 1-12, Oct. 2021.

[4] **J. K. Nøland**, "Hydrogen Electric Airplanes: A disruptive technological path to clean up the aviation sector", *IEEE Electrific. Mag.*, vol. 9, no. 1, pp. 92-102, Apr. 2021.

[5] M. Leandro, **J. K. Nøland**, "An Approach for Optimal Pre-Conditioning of the Analytical Field Solution of Slotless PM Machines", *IEEE Access*, vol. 9, pp. 36748-36765, Feb. 2021.

[6] **J. K. Nøland**, "Prospects and Challenges of the Hyperloop Transportation System: A Systematic Technology Review", *IEEE Access*, vol. 9, pp. 28439-28458, Feb. 2021.

[7] F. Maurer, **J. K. Nøland**, "A Rectangular End-Winding Model for Enhanced Circulating Current Prediction in AC Machines", *IEEE Trans. Energy Convers.*, vol. PP, no. 99, pp. 1-9, July 2020.

[8] **J. K. Nøland**, M. Leandro, J. A. Suul, M. Molinas, "High-Power Machines and Starter-Generator Topologies for More Electric Aircraft: A Technology Outlook", *IEEE Access*, vol. 8, pp. 130104-130123, July 2020.

[9] F. Maurer, B. Kawkabani, **J. K. Nøland**, "Generalized and Reduced Analytical Formulation for Ultra-Fast 3-D Field and Vector Potential Calculation From Arch-Shaped Axially Magnetized Bodies in Electrical Machines", *IEEE Trans. Magn.*, vol. 56, no. 7, July 2020.

[10] F. Maurer, B. Kawkabani, **J. K. Nøland**, "Rapid 3-D Magnetic Integral Field Computation of Current-Carrying Finite Arc Segments With Rectangular Cross Section", *IEEE Trans. Magn.*, vol. 56, no. 2, Feb. 2020.

[11] **J. K. Nøland**, E. F. Alves, A. Pardini, U. Lundin, "Unified Reduced Model for a Dual Control Scheme of the High-Speed Response Brushless Excitation System of Synchronous Generators", *IEEE Trans. Ind. Electron.*, vol. 67, no. 6, pp. 4474-4484, June 2020.

[12] T. Øyvang, **J. K. Nøland**, R. Sharma, G. J. Hegglid, B. Lie, "Enhanced Power Capability of Generator Units for Increased Operational Security Using NMPC", *IEEE Trans. Power Syst.*, vol. 35, no. 2, pp. 1562-1571, March 2020.

[13] **J. K. Nøland**, S. Nuzzo, A. Tessarolo, E. F. Alves, "Excitation System Technologies for Wound-Field Synchronous Machines: Survey of Solutions and Evolving Trends", *IEEE Access*, vol. 7, pp. 109699-109718, Aug. 2019.

[14] T. Øyvang, **J. K. Nøland**, G. J. Hegglid, B. Lie, "Online Model-Based Thermal Prediction for Flexible Control of an Air-Cooled Hydrogenerator", *IEEE Trans. Ind. Electron.*, vol. 66, no. 8, pp. 6311-6320, Aug. 2019.

[15] **J. K. Nøland**, F. Evestedt, U. Lundin, "Failure Modes Demonstration and Redundant Postfault Operation of Rotating Thyristor Rectifiers on Brushless Dual-Star Exciters", *IEEE Trans. Ind. Electron.*, vol. 66, no. 2, pp. 842-851, Feb. 2019.

[16] **J. K. Nøland**, F. Evestedt, U. Lundin, "Active Current Sharing Control Method for Rotating Thyristor Rectifiers on Brushless Dual-Star Exciters", *IEEE Trans. Energy Convers.*, vol. 33, no. 2, pp. 893-896, June 2018.

[17] **J. K. Nøland**, F. Evestedt, J. J. Pérez-Loya, J. Abrahamsson, U. Lundin, "Testing of Active Rectification Topologies on a Six-Phase Rotating Brushless Outer Pole PM Exciter", *IEEE Trans. Energy Convers.*, vol. 33, no. 1, pp. 59-67, March 2018.

[18] **J. K. Nøland**, F. Evestedt, J. J. Pérez-Loya, J. Abrahamsson, U. Lundin, "Comparison of Thyristor Rectifier Configurations for a Six-Phase Rotating Brushless Outer Pole PM Exciter", *IEEE Trans. Ind. Electron.*, vol. 65, no. 2, pp. 2016-2027, Feb. 2018.

[19] **J. K. Nøland**, F. Evestedt, J. J. Pérez-Loya, J. Abrahamsson, U. Lundin, "Design and Characterization of a Rotating Brushless Outer Pole PM Exciter for a Synchronous Generator", *IEEE Trans. Ind. Appl.*, vol. 53, no. 3, pp. 2016-2027, May-June 2017.

[20] **J. K. Nøland**, K. B. Hjelmervik, U. Lundin, "Comparison of Thyristor-Controlled Rectification Topologies for a Six-Phase Rotating Brushless Permanent Magnet Exciter", *IEEE Trans. Energy Convers.*, vol. 33, no. 1, pp. 314-322, March 2016.

Journal Publications: Mathematical Physics

[21] P. Tyvand, **J. K. Nøland**, "Transient nonlinear Rayleigh-Bénard convection with single-mode initiation", *Physics of Fluids*, vol. 33, no. 11, 114111, Nov. 2021.

[22] P. Tyvand, **J. K. Nøland**, "A Length Scale Approach to the Highest Standing Water Wave", *Physics of Fluids*, vol. 33, no. 7, 072107, May 2021.

[23] P. Tyvand, **J. K. Nøland**, "Stagnant peaked free surface released at a sloping beach", *Journal of Engineering Mathematics*, vol. 127, no. 14, Apr. 2021.

[24] P. Tyvand, **J. K. Nøland**, "Onset of Convection in Two-Dimensional Porous Cavities with Open and Conducting Boundaries", *Transport in Porous Media*, vol. 136, no. 3, pp. 791-812, Feb. 2021.

[25] P. Tyvand, **J. K. Nøland**, "Peaked sloshing in a wedge container", *Journal of Engineering Mathematics*, vol. 126, no. 1, Feb. 2021.

[26] P. Tyvand, **J. K. Nøland**, "Non-normal-Mode Onset of Convection in a Vertical Porous Cylinder", *Transport in Porous Media*, vol. 136, no. 1, pp. 319-341, Jan. 2021.

[27] P. Tyvand, **J. K. Nøland**, "Laterally Penetrative Onset of Convection in a Horizontal Porous Layer", *Transport in Porous Media*, vol. 134, pp. 77-95, June 2020.

[28] P. Tyvand, **J. K. Nøland**, "Oscillatory Convection Onset in a Porous Rectangle with Non-analytical Corners", *Transport in Porous Media*, vol. 132, pp. 535-559, March 2020.

[29] P. Tyvand, **J. K. Nøland**, "A Non-normal-mode Marginal State of Convection in a Porous Box with Insulating End-Walls", *Transport in Porous Media*, vol. 131, pp. 661-679, Nov. 2019.

[30] P. Tyvand, **J. K. Nøland**, "Onset of Convection in a Triangular Porous Prism with Robin-Type Thermal Wall Condition", *Transport in Porous Media*, vol. 130, pp. 751-767, Sept. 2019.

[31] P. Tyvand, **J. K. Nøland**, "Oscillatory Non-normal-Mode Onset of Convection in a Porous Rectangle", *Transport in Porous Media*, vol. 129, pp. 955-974, July 2019.

[32] P. Tyvand, **J. K. Nøland**, L. Storesletten, "Oscillatory Non-normal-Mode Onset of Convection in a Porous Rectangle", *Transport in Porous Media*, vol. 128, pp. 633-651, March 2019.