

## Publikationen

ORCID: 0000-0002-2024-4497

### Schutzrechte und -anmeldungen

Jauch, C., '*Hydropneumatisches Schwungrad zur Energiespeicherung*', filed at European Patent Office, Den Haag (PCT/EP2020/085226), 09.12.2020

Jauch, C., '*Windenergieanlage mit Einrichtung zur Wasserremission in die Atmosphäre*', eingereicht beim DPMA (DE 10 2020 129 453.0), 09.11.2020

Jauch, C., '*Hydropneumatisches Schwungrad zur Energiespeicherung*', eingereicht beim DPMA (DE 10 2019 133 840.9), 10.12.2019

Jauch, C., '*Kolbenspeicher mit ovalem Querschnitt zur Integration in ein Rotorblatt*', DPMA Gebrauchsmuster 20 2016 000 658, IPC: F03/D 1/06, eingetragen am 23.02.2016

Jauch, C., '*Simulationsmodell für eine Windenergieanlage sowie Erzeugung und Verwendung*', DPMA Patent DE 102011002842 B4, erteilt am 13.02.2014

Jauch, C.; Kloft, P.; Bartels, '*Auswuchtvorrichtung und Verfahren zur Kompensation der Unwucht von Rotoren von Windenergieanlagen*', DPMA Patent DE102016003345A1 erteilt am 21.09.2017

Jauch, C., '*Simulationsmodell für eine Windenergieanlage sowie Erstellung und Verwendung*' (*Simulation Model for a Wind Power Installation, and Production and Use Thereof*), Pub. No.: WO/2012/098170, International Application No.: PCT/EP2012/050735, International Filing Date: 18.01.2012, Publication Date: 26.07.2012

Jauch, C., '*Simulationsmodell für eine Windenergieanlage sowie Erstellung und Verwendung*', eingereicht beim DPMA, (AZ 102011007434.1), am 14.04.2011

### Dissertation

Jauch, C., '*Stability and control of wind farms in power systems*' Risø-PhD-24(EN), 202 p. (ph.d. thesis), 2006

### Journalartikel mit peer-review

Alhrshy, L.; Jauch, C.; Kloft, P., '[Development of a Flexible Lightweight Hydraulic-Pneumatic Flywheel System for Wind Turbine Rotors](#)', Fluids, vol. 5, issue 4, n° 162; DOI: 10.3390/fluids5040162, 2020

Thiesen, H.; Jauch, C., '[Determining the Load Inertia Contribution from Different Power Consumer Groups](#)', Energies, vol. 13, issue 7, n° 1588; DOI: 10.3390/en13071588, 2020

- Jauch, C.; Gloe, A., ['Simultaneous Inertia Contribution and Optimal Grid Utilization with Wind Turbines'](#), *Energies* 2019, 12(15), 3013; DOI: 10.3390/en12153013
- Hippel, S.; Jauch, C., ['Load Analysis of Hydraulic-Pneumatic Flywheel Configurations Integrated in a Wind Turbine Rotor'](#), *Wind Energy*, vol. 22, pp. 1190–1202, DOI: 10.1002/we.2349, 2019
- Reichstein, T.; Schaffarczyk, A.P.; Dollinger, C.; Balaesque, N.; Schüle, E.; Jauch, C.; Fischer, A., ['Investigation of Laminar–Turbulent Transition on a Rotating Wind-Turbine Blade of Multimegawatt Class with Thermography and Microphone Array'](#), *Energies* 2019, 12, 2102; DOI: 10.3390/en12112102
- Gloe, A.; Jauch, C.; Craciun, B.; Winkelmann, J., ['Continuous provision of synthetic inertia with wind turbines: implications for the wind turbine and for the grid'](#), *IET Renewable Power Generation*, vol. 13, issue 5, pp. 668–675, DOI: 10.1049/iet-rpg.2018.5263, 2019
- Hippel, S.; Jauch, C.; Ritschel, U., ['Hydraulic-pneumatic flywheel configurations for controlling the inertia of a wind turbine rotor'](#), *Wind Engineering*, vol. 43, issue 2, pp. 114–132, DOI: 10.1177/0309524X18780386, 2019
- Jauch, C.; Gloe, A.; Hippel, S.; Thiesen, H., ['Increased Wind Energy Yield and Grid Utilisation with Continuous Feed-In Management'](#), *Energies* 2017, 10, 870; DOI: 10.3390/en10070870
- Thiesen, H.; Jauch, C.; Gloe, A., ['Design of a System Substituting Today's Inherent Inertia in the European Continental Synchronous Area'](#), *Energies*, vol. 9, issue 8, n° 582; DOI: 10.3390/en9080582, 2016
- Jauch, C., ['Controls of a flywheel in a wind turbine rotor'](#), *WIND ENGINEERING*, vol. 40, issue 2, pp. 173-185, DOI: 10.1177/0309524X16641577, 2016
- Jauch, C.; Hippel, S., ['Hydraulic–pneumatic flywheel system in a wind turbine rotor for inertia control'](#), *IET Renewable Power Generation*, vol. 10, issue 1, pp. 33-41, DOI: 10.1049/iet-rpg.2015.0223, 2016
- Jauch, C.; Nussel, N., ['Development of a Contactless Pitch Angle Measurement System'](#), *WIND ENGINEERING*, vol. 38, issue 6, pp. 621–632, 2014
- Jauch, C., ['A Simple Wind Model for Fast Wind Farm Simulations'](#), *WIND ENGINEERING*, vol. 38, issue 5, pp. 523-534, 2014

## Konferenzartikel

Jauch, C., ['A flywheel in a wind turbine rotor for inertia control'](#), WIND ENERGY, vol. 18, pp. 1645–1656, 2015, DOI: 10.1002/we.1784, 2014

Jauch, C., ['Transient and Dynamic Control of a Variable Speed Wind Turbine With Synchronous Generator'](#), WIND ENERGY, vol. 10, pp. 247-269, 2007

Jauch, C.; Sørensen, P.; Norheim, I.; Rasmussen, C., ['Simulation of the Impact of Wind Power on the Transient Fault Behavior of the Nordic Power System'](#), ELECTRIC POWER SYSTEMS RESEARCH, issue 77, pp. 135-144, 2007

Jauch, C.; Cronin, T.; Sørensen, P.; Bak-Jensen, B., ['A Fuzzy Logic Pitch Angle Controller for Power System Stabilization'](#), WIND ENERGY, vol. 10, issue 1, pp. 19-30, 2007

Jauch, C.; Islam S.M.; Sørensen, P.; Bak-Jensen, B., ['Design of a Wind Turbine Pitch Angle Controller for Power System Stabilisation'](#), RENEWABLE ENERGY, vol. 32, issue 14, pp. 2334-2349, 2007

Jauch, C.; Cronin, T., ['Simulation Model of a Wind Turbine Pitch Controller for Grid Frequency Stabilisation'](#), WIND ENGINEERING, vol. 29, issue 4, pp. 377-387, 2005

Jauch, C.; Sørensen, P.; Bak-Jensen, B., ['The Relevance of the Dynamic Stall Effect for Transient Fault Operations of Active-Stall Wind Turbines'](#), WIND ENGINEERING, vol. 29, issue 4, pp. 353-364, 2005

Jauch, C.; Sørensen, P.; Bak-Jensen, B., ['Simulation Model of a Transient Fault Controller for an Active-Stall Wind Turbine'](#), WIND ENGINEERING, vol. 29, issue 1, pp. 33-48, 2005

Jauch, C.; Matevosyan, J.; Ackermann, T.; Bolik, S., ['International Comparison of Requirements for Connection of Wind Turbines to Power Systems'](#), WIND ENERGY, vol. 8, issue 3, pp. 295-306, 2005

Iov, F.; Hansen, A.D.; Jauch, C.; Sørensen P.; Blaabjerg, F., ['Advanced Tools for Modelling, Design and Optimization of Wind Turbine Systems'](#), JOURNAL OF POWER ELECTRONICS, Korean Institute of Power Electronics, vol. 5, No. 2, pp. 83-98, ISSN 1598-2092, April 2005

Jauch C.; Hansen, A.D.; Sørensen, P.; Blaabjerg, F., ['Simulation Model of an Active-Stall Fixed-Speed Wind Turbine Controller'](#), WIND ENGINEERING, vol. 28, issue 2, pp. 177-195, 2004

Rohr, A.; Jauch, C., ['Large Scale Test Bench for Emulating Grid Connected Wind Turbines of Different Sizes'](#), IEEE CPE-POWERENG 2019, 13th International Conference on Compatibility, Power Electronics and Power Engineering, 23-25 April 2019 - Sønderborg, Denmark, Conference Proceedings

Thiesen, H.; Jauch, C., ['Identifying electromagnetic illusions in grid frequency measurements for synthetic inertia provision'](#), IEEE CPE-POWERENG 2019, 13th International Conference on

Compatibility, Power Electronics and Power Engineering, 23-25 April 2019 - Sonderborg, Denmark, Conference Proceedings

Thiesen, H.; Jauch, C., ['A dispatch methodology to secure power system inertia in future power systems'](#), 17th Wind Integration Workshop, Stockholm, 17-19 October 2018, Conference Proceedings

Jauch, C.; Gloe, A., ['Flexible Wind Power Control for Optimal Power System Utilisation'](#), WindAc Africa 2017, Cape Town, 14-15 November 2017, Conference Proceedings

Gloe, A.; Jauch, C., ['Measurements of the dynamic response of a wind turbine to excitations from the wind'](#), WindAc Africa 2017, Cape Town, 14-15 November 2017, Conference Proceedings

Gloe, A.; Jauch, C.; Craciun, B.; Winkelmann, J., ['Limitations for the Continuous Provision of Synthetic Inertia with Wind Turbines'](#), 16th Wind Integration Workshop, Berlin, 25-27 October 2017, Conference Proceedings

Thiesen, H.; Gloe, A.; Jauch, C.; Viebek, J., ['The Provision of Synthetic Inertia by Wind Turbine Generators: An Analysis of the Energy Yield and Costs'](#), 16th Wind Integration Workshop, Berlin, 25-27 October 2017, Conference Proceedings

Jauch, C.; Gloe, A., ['Improved feed-in management with wind turbines'](#), 15th Wind Integration Workshop, Vienna, 15-17 November 2016, Conference Proceedings

Gloe, A.; Thiesen, H.; Jauch, C., ['Grid frequency analysis for assessing the stress on wind turbines'](#), 15th Wind Integration Workshop, Vienna, 15-17 November 2016, Conference Proceedings

Hippel, S.; Jauch, C., ['Optimisation of the Concept of a Hydraulic-Pneumatic Flywheel System in a Wind Turbine Rotor'](#), 14th Wind Integration Workshop, Brussels, 2015, Conference Proceedings, DOI: 10.13140/RG.2.1.2424.1365

Huhn, M., Hopp, M., Jauch, C., ['Additional Design Criteria for Wind Turbines: Excitation to Mechanical Vibrations from the Power System'](#), 6. VDI-Fachtagung Schwingungen von Windenergieanlagen 2015, Bremen, VDI-Bericht 2242, pp. 1-10, DOI: 10.13140/RG.2.1.3870.6409

Hippel, S.; Jauch, C., ['Hydraulic-Pneumatic Energy Storage in a Wind Turbine for Enhancing the Power System Inertia'](#), 13th Wind Integration Workshop, Berlin, 2014, Conference Proceedings, DOI: 10.13140/2.1.3731.6160

Jauch, C., ['Wind Turbine Pitch Angle Controllers for Grid Frequency Stabilisation'](#), Proceedings of European Wind Energy Conference 2006, Athens, Greece

Jauch, C.; Islam, S. M., ['Identification of a Reduced Order Wind Turbine Transfer Function from the Turbine's Step Response'](#), Australasian Universities Power Engineering Conference, Hobart, Australia, 25-28 September 2005, Proceedings, pp. 353-356, 2005

## Institutsberichte

Jauch, C.; Sørensen, P.; Bak-Jensen, B., ***'International review of grid connection requirements for wind turbines'***, In: Grid integration and electrical systems of wind turbines and wind farms (CD-ROM), Nordic wind power conference 2004 (NWPC 04), Göteborg (SE), 1-2 Mar 2004. (Chalmers University of Technology, Göteborg, 2004) 6 p.

Iov, F.; Hansen, A.D.; Jauch, C.; Sørensen, P.; Blaabjerg, F., ***'Advanced tools for modeling, design and optimization of wind turbine systems'***, In: Grid integration and electrical systems of wind turbines and wind farms (CD-ROM). Nordic wind power conference 2004 (NWPC 04), Göteborg (SE), 1-2 Mar 2004. (Chalmers University of Technology, Göteborg, 2004) 12 p.

Jauch, C. and Redfern, M A, ***'A Simulation Model of a Phosphoric Acid Fuel Cell Power Plant'***, Proceedings 38<sup>th</sup> International UPEC 2003, Thessaloniki, September 2003, Vol 2, pp 561-564

Alhrshy, L.; Jauch, C.; Bünning, N.; Schaffarczyk, A.P., ***'Development of a Lightweight Hydraulic-Pneumatic Flywheel System for Wind Turbine Rotors'***, WETI Hochschule Flensburg, 04.01.2021, DOI: 10.13140/RG.2.2.13569.89447

Jauch, C., ***'First Eigenmodes Simulation Model of a Wind Turbine - for Control Algorithm Design'***, WETI Hochschule Flensburg, 07.09.2020, DOI: 10.13140/RG.2.2.17192.19204

Gloe, A.; Jauch, C.; Thiesen, H.; Viebeg, J., ***'Inertial Response Controller Design for a Variable Speed Wind Turbine'***, WETI Hochschule Flensburg, 21.03.2018, DOI: 10.13140/RG.2.2.27846.57926

Jauch, C., ***'First Eigenmode Simulation Model of a Wind Turbine - for Control Algorithm Design'***, WETI Hochschule Flensburg, 21.12.2016, DOI: 10.13140/RG.2.2.15839.46244

Gloe, A.; Jauch, C., ***'Simulation Model Design and Validation of a Gearless Wind Turbine - For Fast Power Control to Enhance Congestion Management'***, WETI Fachhochschule Flensburg, 23.03.2016, DOI: 10.13140/RG.2.1.1697.5766

Haberl, A.; Jauch, C.; Jankowski, S., ***'Dynamische Netzstützung durch Windenergieanlagen'***, WETI Fachhochschule Flensburg, 02.07.2015

Hippel, S.; Thiesen, H.; Jauch, C., ***'Regelbares Schwungrad in einem Rotor einer Windenergieanlage zur Unterstützung der Netzfrequenzregelung'***, WETI Fachhochschule Flensburg, 13.03.2015, DOI: 10.13140/2.1.3076.8166

Norheim, I.; Mogstad, O.; Sørensen, P.; Jauch, C.; Pudjianto, D.; Anaja-Lara, O., ***'Case Studies on System Stability With Increased RES-E Grid Integration'***, SINTEF Energy Research, 10-11-2005, ISSN/ISBN: 82-594-2945-4

Norheim, I.; Lindgren, E.; Uski, S.; Sørensen, P.; Jauch, C., ***'WILMAR - System stability analysis'***, SINTEF-TR-F6212 (2005) (WILMAR Deliverable D5.1) 101 p.

## Populärwissenschaftliche Artikel

Hansen, A.D.; Jauch, C.; Sørensen, P.; Iov, F.; Blaabjerg, F., ***[‘Dynamic wind turbine models in power system simulation tool DIgSILENT’](#)***, Risø National Laboratory. Risø-R-1400(EN), December 2003. ISBN 87-550-3198-6, ISBN 87-550-3199-4 (Internet), ISSN 0106-2840

Jauch, C.; Alhrshy, L.; Kloft, P., ***‘Flexible hydropneumatische Kolbenspeicher aus kohlefaserverstärktem Kunststoff zum Einsatz in Rotorblätter von Windenergieanlagen’***, Ingenieurspiegel Ausgabe 4 | 2019, p. 22-24, 11/2019

Gloe, A.; Jauch, C.; Räther, T., ***‘Störfall im Flensburger Stromnetz – wie Windenergieanlagen den Blackout möglicherweise hätten verhindern können’***, Ingenieurspiegel Ausgabe 4 | 2019, p. 18-20, 11/2019

Rohr, A.; Gloe, A.; Jauch, C.; Thiemke, M.; Wilhelm, J.E., ***‘Ein Windenergieanlagenemulator zum Test von Leistungseinspeisung im Netz’***, Ingenieurspiegel Ausgabe 4 | 2019, p. 5-8, 11/2019

Gloe, A.; Rohr, A.; Jauch, C.; Thiemke, M., ***‘Windenergieanlagen, Schiffsmotoren und Stromnetze, Synergien im Test’***, Ingenieurspiegel Ausgabe 4 | 2018, p. 14-15, 11/2018

Hippel, S.; Jauch, C.; Kloft, P., ***‘Entwicklung von gewichtsreduzierten hydropneumatischen Speichern für Schwungradsysteme in WEA-Rotoren’***, Ingenieurspiegel Ausgabe 4 | 2017, p. 16-17, 11/2017

Gloe, A.; Jauch, C.; Winkelmann, J., ***‘Synthetische Trägheit aus Windenergie: ein Kompromissvorschlag’***, Ingenieurspiegel Ausgabe 4 | 2017, p. 13-14, 11/2017

Jauch, C.; Gloe, A., ***‘Verbessertes Einspeisemanagement mit Windenergieanlagen’***, Ingenieurspiegel Ausgabe 4 | 2016, p. 16-18, 11/2016

Jauch, C.; Thiesen, H.; Gloe, A., ***‘Der Wert der Systemträgheit im Stromnetz vor dem Hintergrund der Energiewende’***, Ingenieurspiegel Ausgabe 4 | 2015, p. 62-63, 11/2015

Haberl, A.; Jauch, C., ***‘FH Flensburg erforscht dynamische Netzfrequenzstützung durch Windenergieanlagen’***, Ingenieurspiegel Ausgabe 4 | 14, p. 2-3, 11/2014

Jauch C., ***‘FH Flensburg erforscht dynamische Leistungsbereitstellung durch WEA’***, Ingenieurspiegel Ausgabe 4 | 13, p. 20-21, 11/2013