

Publikationsliste / List of publications

Stuttgarter Lehrstuhl für Windenergie, Universität Stuttgart (SWE)

Projektname: Entwicklung gondelbasierter LIDAR-Technologien für die Messung des Leistungsverhaltens und die Regelung von Windenergieanlagen
 Kurzname in Rave: LIDAR II (FKZ 0325216A)
 Stand: April 2016

Begutachtete Artikel in wissenschaftlichen Zeitschriften:

2015:

- [J7] D. Schlipf, F. Haizmann, N. Cosack, T. Siebers, P. W. Cheng, *Detection of Wind Evolution and Lidar Trajectory Optimization for Lidar Assisted Wind Turbine Control*, Meteorologische Zeitschrift 24 (2015), S. 565-579. (<http://dx.doi.org/10.1127/metz/2015/0634>).

2014:

- [J5] S. Raach, D. Schlipf, F. Haizmann, P. W. Cheng, *Three Dimensional Dynamic Model Based Wind Field Reconstruction from Lidar Data*, Journal of Physics: Conference Series, vol 524, 012005, 2014 (<http://dx.doi.org/10.1088/1742-6596/524/1/012005>).
- [J4] A. Rettenmeier, D. Schlipf, I. Würth, P.W. Cheng, *Power performance measurements of the NREL CART-2 wind turbine using a nacelle-based lidar scanner*, Journal of Atmospheric and Oceanic Technology, 2014, vol. 31, no. 10, pp. 2029–2034, 2014 (<http://dx.doi.org/10.1175/JTECH-D-13-00154.1>).

2013:

- [J3] D. Schlipf, J. Mann, P.W. Cheng, *Model of the Correlation between Lidar Systems and Wind Turbines for Lidar Assisted Control*, Journal of Atmospheric and Oceanic Technology, vol. 30, no. 10, pp. 2233–2240, 2013 (<http://dx.doi.org/10.1175/JTECH-D-13-00077.1>).
- [J2] D. Schlipf, P. W. Cheng, *Adaptive Feed Forward Control for Wind Turbines*, at – Automatisierungstechnik, vol. 61, no. 5, pp. 329-338, 2013 (<http://dx.doi.org/10.1524/auto.2013.0029>).
- [J1] D. Schlipf, D. J. Schlipf, M. Kühn, *Nonlinear Model Predictive Control of Wind Turbines Using LIDAR*, Wind Energy, vol. 16, no. 7, pp. 1107–1129, 2013 (<http://dx.doi.org/10.1002/we.1533>).

Begutachtete Beiträge auf Konferenzen (Vortrag + veröffentlicht im Tagungsband):

2014:

- [R8] D. Schlipf, P. W. Cheng, *Flatness-based Feedforward Control of Wind Turbines Using Lidar*, World Congress of the International Federation of Automatic Control, Cape Town, South Africa, August 2014 (<http://dx.doi.org/10.3182/20140824-6-ZA-1003.00443>).
- [R7] S. Raach, D. Schlipf, F. Sandner, P. W. Cheng, *Nonlinear Model Predictive Control of Floating Wind Turbines with Individual Pitch Control*, in the Proceedings of the American Control Conference (ACC), Portland, USA, June 2014 (invited, <http://dx.doi.org/10.1109/ACC.2014.6858718>)
- [R6] D. Schlipf, P. Grau, S. Raach, R. Duraiski, J. Trierweiler, P. W. Cheng, *Comparison of Linear and Nonlinear Model Predictive Control of Wind Turbines Using LIDAR*, American Control Conference, Portland, USA, June 2014 (invited, <http://dx.doi.org/10.1109/ACC.2014.6859205>)
- [R5] F. Dunne, L. Y. Pao, D. Schlipf, A. Scholbrock, *Importance of Lidar Measurement Timing Accuracy for Wind Turbine Control*, American Control Conference, Portland, USA, June 2014 (invited, <http://dx.doi.org/10.1109/ACC.2014.6859337>)

2013:

- [R4] D. Schlipf, P. Fleming, S. Kapp, A. Scholbrock, F. Haizmann, F. Belen, A. Wright, P. W. Cheng, *Direct Speed Control Using LIDAR and Turbine Data*, American Control Conference, pp. 2208-2213, Washington, USA, June 2013 (invited, <http://dx.doi.org/10.1109/ACC.2013.6580163>).
- [R3] A. Scholbrock, P. Fleming, L. Fingersh, A. Wright, D. Schlipf, F. Haizmann, F. Belen, *Field Testing LIDAR-Based Feed-Forward Controls on the NREL Controls Advanced Research Turbine*, 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Grapevine, USA, January 2013 (<http://dx.doi.org/10.2514/6.2013-818>).
- [R2] D. Schlipf, L. Y. Pao, P. W. Cheng, *Comparison of Feedforward and Model Predictive Control of Wind Turbines Using LIDAR*, 51st IEEE Conference on Decision and Control, pp. 3050-3055, Maui, USA, December 2012 (<http://dx.doi.org/10.1109/CDC.2012.6426063>).

2012:

- [R1] F. Dunne, D. Schlipf, L. Y. Pao, A. Wright, B. Jonkman, N. Kelly, E. Simley, *Comparison of Two Independent Lidar-Based Pitch Control Designs*, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, USA, January 2012 (<http://dx.doi.org/10.2514/6.2012-1151>).

Weitere Beiträge auf Konferenzen (Vortrag + veröffentlicht im Tagungsband):

2015:

- [C8] S. Raach, D. Schlipf, F. Haizmann, H. Fürst, I. Würth, P.W. Cheng, *Advances in lidar-assisted control and power curve measurement of wind turbines in the LIDAR II project*, EWEA Offshore, Copenhagen, 2015
- [C7] F. Haizmann, D. Schlipf, P.W. Cheng, *Correlation-Model of Rotor-Effective Wind Shears and Wind Speed for Lidar-Based Individual Pitch Control*, German Wind Energy Conference (DEWEK), Bremen, Germany, May 2015.

[C6] I. Würth, A. Rettenmeier, P. W. Cheng, M. Wächter, P. Lind, J. Peinke., Determination of stationary and dynamical power curves in inhomogeneous wind flow using a nacelle-based lidar system, German Wind Energy Conference (DEWEK), Bremen, Germany, May 2015.

2012:

[C5] D. Schlipf, A. Rettenmeier, F. Haizmann, M. Hofsäß, M. Courtney, P. W. Cheng, *Model Based Wind Vector Field Reconstruction from Lidar Data*, German Wind Energy Conference (DEWEK), Bremen, Germany, November 2012 (<http://elib.uni-stuttgart.de/opus/volltexte/2013/8431/>).

[C4] I. Würth, A. Rettenmeier, D. Schlipf, P. W. Cheng, M. Wächter, P. Rinn, J. Peinke, *Determination of Stationary and Dynamical Power Curves Using a Nacelle-based LIDAR System*, German Wind Energy Conference (DEWEK), Bremen, Germany, November 2012 (<http://elib.uni-stuttgart.de/opus/volltexte/2013/8463/>).

[C3] A. Rettenmeier, J. Anger, O. Bischoff, M. Hofsäß, D. Schlipf, I. Würth, *Nacelle-Based Lidar Systems*, Summer School in Remote Sensing for Wind Energy, Boulder, USA, June 2012 (http://rasei.colorado.edu/wind-research-internal1/Andreas_Rettenmeier.pdf).

[C2] D. Schlipf, *Lidars for Wind Turbine Control*, Summer School in Remote Sensing for Wind Energy, Boulder, USA, June 2012 (http://rasei.colorado.edu/wind-research-internal1/David_Schlipf.pdf).

2011:

[C1] D. Schlipf, S. Kapp, J. Anger, O. Bischoff, M. Hofsäß, A. Rettenmeier, U. Smolka, M. Kühn, *Prospects of Optimization of Energy Production by LiDAR Assisted Control of Wind Turbines*, European Wind Energy Association Annual Event (EWEA), Brussels, Belgium, March 2011 (<http://elib.uni-stuttgart.de/opus/volltexte/2013/8585/>).

Technische Berichte:

2013:

[T3] D. Schlipf, *Lidars and Wind Turbine Control - Part 1* (Chapter 9 in Remote Sensing for Wind Energy), DTU Wind Energy, DTU Wind Energy-E-Report-0029(EN), Roskilde, Denmark, June 2013 (<http://elib.uni-stuttgart.de/opus/volltexte/2013/8517/>).

[T2] A. Rettenmeier, J. Anger, O. Bischoff, M. Hofsäß, D. Schlipf, I. Würth, *Nacelle-based lidar systems* (Chapter 8 in Remote Sensing for Wind Energy), DTU Wind Energy, DTU Wind Energy-E-Report-0029(EN), Roskilde, Denmark, June 2013 (http://orbit.dtu.dk/files/55501125/Remote_Sensing_for_Wind_Energy.pdf).

2012:

[T1] F. Dunne, D. Schlipf, L. Pao, *Comparison of Two Independent Lidar-Based Pitch Control Designs*, NREL-report NREL/SR-5000-55544, August 2012 (<http://www.nrel.gov/docs/fy12osti/55544.pdf>).

Beiträge in Sammelbänden:

2011:

- [E2] D. Schlipf, O. Bischoff, M. Hofsäß, A. Rettenmeier, J. J. Trujillo, and M. Kühn, "LiDAR and Wind Turbine Control", in *Remote Sensing for Wind Energy. Risø report Risø-I-3184(EN)*, Risø National Laboratory for Sustainable Energy, A. Peña and C. B. Hasager, Eds. Risø National Laboratory for Sustainable Energy, Technical University of Denmark, Roskilde, Denmark, May 2011, pp. 139-147.
- [E1] A. Rettenmeier, J. Anger, O. Bischoff, M. Hofsäß, D. Schlipf, "Nacelle wind lidar", in *Remote Sensing for Wind Energy. Risø report Risø-I-3184(EN)*, Risø National Laboratory for Sustainable Energy, A. Peña and C. B. Hasager, Eds. Risø National Laboratory for Sustainable Energy, Technical University of Denmark, Roskilde, Denmark, May 2011, pp. 126-138.

Vorträge auf Konferenzen:

2014:

- [O14] D. Schlipf, F. Haizmann, N. Cosack, T. Siebers, P. W. Cheng, *Detection of Wind Evolution and Lidar Trajectory Optimization for Lidar Assisted Wind Turbine Control*, 17th International Symposium for the Advancement of Boundary Layer Remote Sensing (ISARS), Auckland, New Zealand, January 2014.

2012:

- [O13] D. Schlipf, P. Fleming, F. Haizmann, A. Scholbrock, M. Hofsäß, A. Wright, P. W. Cheng, *Field Testing of Feedforward Collective Pitch Control on the CART2 Using a Nacelle-Based Lidar Scanner*, Science of making torque from wind, Oldenburg, Germany, October 2012.
- [O12] P. W. Cheng, D. Schlipf, *Characterize, Measure and Control: Using Lidar for Wind Turbine Control Purposes*, 3. VDI-Fachkonferenz Offshore-Windenergieanlagen, Bremerhaven, Germany, October 2012.
- [O11] J. J. Trujillo, D. Trabucchi, D. Schlipf, M. Kühn, *Numerical simulation of detailed lidar measurements in the near wake of a wind turbine*, 16th International Symposium for the Advancement of Boundary Layer Remote Sensing (ISARS), Boulder, USA, June 2012.
- [O10] A. Rettenmeier, D. Schlipf, I. Würth, P.W. Cheng, *Power performance measurements of the NREL CART-2 wind turbine using a nacelle-based lidar scanner*, 16th International Symposium for the Advancement of Boundary Layer Remote Sensing (ISARS), Boulder, USA, June 2012.
- [O9] D. Schlipf, J. Mann, P.W. Cheng, *Model of the Correlation between Lidar Systems and Wind Turbines for Lidar Assisted Control*, Journal of Atmospheric and Oceanic Technology, 16th International Symposium for the Advancement of Boundary Layer Remote Sensing (ISARS), Boulder, USA, June 2012.
- [O8] D. Schlipf, J. Anger, O. Bischoff, M. Hofsäß, A. Rettenmeier, I. Würth, B. Siegmeier, P. W. Cheng, *Lidar Assisted Wind Turbine Control*, RAVE International Conference, Bremerhaven, Germany, May 2012.
- [O7] A. Rettenmeier, J. Anger, O. Bischoff, M. Hofsäß, D. Schlipf, I. Würth, P.W. Cheng, *Development of Lidar wind measurement techniques*, RAVE International Conference, Bremerhaven, Germany, May 2012.
- [O6] A. Rettenmeier, R. Wagner, M. Courtney, J. Mann, O. Bischoff, D. Schlipf, J. Anger, M. Hofsäß, P. W. Cheng, *Turbulence and wind speed investigations using a nacelle-based Lidar*

scanner and a met mast, European Wind Energy Association Annual Event (EWEA), Copenhagen, Denmark, April 2012.

2011:

- [O5] O. Bischoff, J. Anger, M. Hofsäß, A. Rettenmeier, D. Schlipf, B. Siegmeier, *Vertical Wind Shear Measured with a Nacelle-based LIDAR System and its Impact on Mechanical Loads*, EWEA Offshore, Amsterdam, The Netherlands, November 2011.
- [O4] D. Schlipf, D. J. Schlipf, M. Kühn, *Nonlinear Model Predictive Control of Wind Turbines Using LIDAR*, AWEA WINDPOWER Conference and Exhibition, Anaheim, USA, May 2011.
- [O3] B. Canadillas, D. Schlipf, T. Neumann, D. Kuehnel, *Validation of Taylors Hypothesis under offshore conditions. An experimental study using a nacelle-based two-beam Lidar*, EGU, Vienna, Austria, April 2011.
- [O2] C. E. Carcangiu, D. Schlipf, T. Maul, T. Fischer, E. Bossanyi, M. Isaac Pineda, *Facing extreme wind conditions with LIDAR assisted control*, European Wind Energy Association Annual Event (EWEA), Brussels, Belgium, March 2011.
- [O1] A. Rettenmeier, P. Klausmann, O. Bischoff, M. Hofsäß, D. Schlipf, B. Siegmeier, M. Kühn, *Determination of Power Curves Based on Wind Field Measurements Using a Nacelle-based Lidar Scanner*, European Wind Energy Association Annual Event (EWEA), Brussels, Belgium, March 2011.

Poster auf Konferenzen:

2014:

- [P3] S. Raach, D. Schlipf, F. Haizmann, P. W. Cheng, *Three Dimensional Dynamic Model Based Wind Field Reconstruction from Lidar Data*, The Science of Making Torque From Wind, Copenhagen, Denmark, 2014
- [P2] F. Haizmann, D. Schlipf, N. Cosack, D. Neuhaus, S. Raach, T. Maul, P. W. Cheng, *Field Testing of LiDAR assisted Feed-Forward Control on a Large Commercial Wind Turbine*, EWEA Annual Event, Barcelona, Spain, March 2014.

2013:

- [P1] F. Haizmann, P. Fleming, D. Schlipf, A. Scholbrock, M. Hofsäß, A. Wright, P. W. Cheng, *Implementation of an Online Correlation Analysis for an Adaptive LiDAR based Feed-Forward Controller for Wind Turbines*, European Wind Energy Association Annual Event (EWEA), Vienna, Austria, February 2013.

Seminare

2014:

- [S8] D. Schlipf, *Lidar-Assisted Control of Wind Turbines*, invited lectures at the Department of Mechanical Engineering, University of Auckland, Auckland, New Zealand, February 2014, funded by the DAAD.

2013:

- [S7] D. Schlipf, *Lidar-Assisted Wind Turbine Control: The Measurement Problem + The Control Problem*, 2 lectures at University of Göteborg & Swedish Wind Power Technology Center, Göteborg, Sweden, September 2013.
- [S6] D. Schlipf, *Lidar assisted Wind Turbine Control*, lectures for a 2-Day Seminar within ForWind-Academy, Bremen, Germany, September 2013, www.hdt-essen.de/W-H010-09-587-3.

2012:

- [S5] D. Schlipf, *LIDAR measurements for wind farm control*, IEA Topical Expert Meeting on Wind Farm Control Methods, Solna, Sweden, November 2012.
- [S4] D. Schlipf, *Lidars for Wind Turbine Control II*, PhD Summer School: Remote Sensing for Wind Energy 2012, Boulder, USA, June 2012.
- [S3] D. Schlipf, *Wind Turbine Control Using LiDAR*, PhD Summer School: Remote Sensing for Wind Energy 2011, Roskilde, Denmark, June 2011.

2011:

- [S2] D. Schlipf, *Nacelle Based LiDAR for Different Wind Turbine Applications*, NREL, USA, May 2011.
- [S1] D. Schlipf, *Wind field analyses using a pulsed nacelle-based scanning LIDAR system*, University of Bergen & Chr. Michelsen Research Institute (CMI), Bergen, Norway, March 2011.

Zur Veröffentlichung eingereicht:

- [J6] D. Schlipf, P. Fleming, F. Haizmann, A. Scholbrock, M. Hofsäß, A. Wright, P. W. Cheng, *Field Testing of Feedforward Collective Pitch Control on the CART2 Using a Nacelle-Based Lidar Scanner*, IOP Conference Series 2014 (in print).