

May 16, 2010

**SHORT CURRICULUM VITAE** for

Henrik Madsen, born 15 October 1955.

- Employed as researcher at the Section of Mathematics at DIAB, February 1980.
- M.Sc. in Engineering (Civilingeniør) from (DTU) specializing (eksamensprojekt) in Statistics, January 1982.
- Selective military service, August 1984 - May 1985.
- Ph.D. (Lic. Techn.), January 1986.
- Ass. Prof. (Adjunkt) in mathematical statistics at IMSOR, February 1986 - September 1989.
- Received 'Direktør Peter Gorm-Petersens Mindelegat' at the annual celebration of the University as an acknowledgement of my research, May 1987.
- Assoc. Prof. (Lektor) in Mathematical Statistics at IMSOR, September 1989 - April 1999.
- External lecture at the University of Copenhagen, Institute of Mathematical Statistics (KUIMS), in Time Series Analysis, September 1989 - February 1990.
- Invited external lecture (ECMI) at the Fourier University, Grenoble, 1994.
- Received a prize (60.000 dkr.) 'Fabrikant Ulrik Brinch og hustru Marie Brinchs legat' as an acknowledgement of my contribution to the theory for and engineering applications of dynamical stochastic systems. March 1997.
- Professor in *Stochastic Dynamic Systems* in the Section of Mathematical Statistics, Inst. Math. Modelling, DTU. April 1999.
- Head of the Research Committee at Informatics and Math. Modelling, 2000-2005.
- Co-chair of the board for the Danish Society for Theoretical Statistics (DSTS), February 2001 - February 2004.
- Elected Member of ISI (International Statistical Institute) and Bernoulli Society, 2004.
- Head of *Center for High Performance Computing* at DTU which was opened by the *Danish Minister of Research*, February 2002 - 2009.
- Member of the advisory committee for *Danish Center Scientific Computing*, May 2003 - 2007.
- Member of Advisory Board for MathWorks (Matlab), May 2006 - .
- Member of the IFAC World committee on System Identification, June 2006 - .
- Member of the e-Science panel at the Danish Agency for Science, Technology and Innovation, March 2010 -

**PUBLICATIONS**

More than 400 publications including 150 papers in journals, 11 research monograph, 5 books (latest books: *H. Madsen, Time Series Analysis, Chapman and Hall, 392 pp., 2008* – *H. Madsen and P. Thyregod, An Introduction to General and Generalized Linear Models, Chapman and Hall, 320 pp., 2010* – *P. Pinson and H. Madsen, Forecasting Wind Power Generation; From Statistical Framework to Practical Aspects (in progress)*).

**PH.D. SUPERVISION**

Supervision of 30 completed PhD projects. Currently supervising 10 PhD students.

**FURTHER PROFESSIONAL ASSIGNMENTS**

I am or have been the leader of – or participated in – a number of research projects financed by the Danish Technical Research Council (STVF), Danish Agricultural and Veterinary Research Council (SJVf), EU, NATO, Ministry of Industry (Erhvervsfremmestyrelsen), Nordic Council (Nordisk Ministerråd), Ministry of Environment and Energy (Energi- og Miljøministeriet), Danish Research Academy (Forskerakademiet), Danish Academy for Technical Sciences (ATV) and a large number of private companies.

The total budget for the research projects I am involved in today is more than 160 mill. dkr. with partners from both Denmark, a number of European countries and US. I have been the head of *Center for High Performance Computing* at DTU which was opened by the Danish Minister of Research in February 2002.

**SELECTED PUBLICATIONS – Selected journal papers 2009-10 only**

1. S. Klim, S.B. Mortensen, N.K. Kristensen, R.V. Overgaard, H. Madsen: *Population Stochastic Modelling (PSM) - An R Package for Mixed-Effects Models based on Stochastic Differential Equations*, Comput Methods Programs Biomedicine, Vol. 94, pp. 279-289, 2009.
2. U.H. Thygesen, M.W. Pedersen, H. Madsen: *Geolocating Fish Using Hidden Markov Models and Data Storage Tags*, Part of: *Tagging and Tracking Marine Animals with Electronic Devices*, pp. 277-293, Springer Verlag, 2009.
3. P. Pinson, H.Aa. Nielsen, H. Madsen, G. Kariniotakis: *Skill forecasting from ensemble predictions of wind power*. Applied Energy 86(7-8), pp. 1326-1334, 2009.
4. P. Bacher, H. Madsen, H.Aa. Nielsen: *Online Short-term Solar Power Forecasting*, Solar Energy, Vol. 83(10), pp. 1772-1783, 2009.
5. P. Pinson, H. Madsen: *Ensemble-based probabilistic forecasting at Horns Rev*. Wind Energy, Vol. 12(2), pp. 137-155 (special issue on Offshore Wind Energy), 2009
6. N. Friling, M.J. Jimenez, H. Bloem, H. Madsen: *Modelling the heat dynamics of building integrated and ventilated photovoltaic modules*, Energy and Building, Vol. 41(10), pp. 1051-1057, 2009.
7. P. Pinson, G. Papaefthymiou, B. Klockl, H.Aa. Nielsen, H. Madsen: *From probabilistic forecasts to statistical scenarios of short-term wind power production*. Wind Energy, Vol. 12(1), pp. 51-62, 2009
8. P. Pinson, T.S. Nielsen, H.Aa. Nielsen, N.K. Poulsen, H. Madsen: *Temperature prediction at critical points in district heating systems*. European Journal of Operational Research, Vol 194(1), pp. 163-176, 2009.
9. P. Pinson, H. Madsen: *Adaptive modeling and forecasting of wind power fluctuations with Markov-switching autoregressive models*. Journal of Forecasting, 2010.
10. J. Tastu, P. Pinson, E. Kotwa, H.Aa. Nielsen, H. Madsen: *Spatio-temporal analysis and modeling of wind power forecast errors*. Wind Energy, 2010
11. F. Thordarson, H.Aa. Nielsen, H. Madsen, P. Pinson: *Conditional weighted combination of wind power forecasts*. Wind Energy, 2010.
12. C.L. Vincent, G. Giebel, P. Pinson, H. Madsen: *Resolving non-stationary spectral signals in wind speed time-series using the Hilbert-Huang transform*. Journal of Applied Meteorology and Climatology, Vol. 49(2), pp. 253-267, 2010.
13. K.R. Philipsen, L.E. Christiansen, H. Hasman, H. Madsen: *Modelling conjugation with stochastic differential equations*, Journal of Theoretical Biology, Vol. 263, pp. 134-142, 2010.
14. P. Pinson, P. McSharry, H. Madsen. *Reliability diagrams for nonparametric density forecasts of continuous variables: accounting for serial correlation*. Quarterly Journal of the Royal Meteorological Society, Vol. 136, pp. 77-90, 2010.
15. L. Pedersen, N.E. Jensen, L.E. Christensen, H. Madsen: *Quantification of the spatial variability of rainfall based on a dense network of rain gauges*, Atmospheric Research, Vol. 95(4), pp. 441-454, 2010
16. P. Giabardo, M. Zugno, P. Pinson, H. Madsen. *Feedback, competition and stochasticity in a day-ahead electricity market*. Energy Economics, Vol. 32(2), pp. 292-301, 2010.
17. T. Jonsson, P. Pinson, H. Madsen. *On the market impact of wind energy forecasts*. Energy Economics, Vol. 32(2), pp. 313-320, 2010.
18. K.R. Philipsen, L.E. Christiansen, H. Madsen: *Modelling bacterial growth in rich media with a non-parametric extension to an SDE based model*, Biometrics, 2010.
19. K.R. Philipsen, L.E. Christiansen, L.F. Mandsberg, H. Hasman, H. Madsen: *Comparison of calibration curves for the relation between optical density and viable cell count data*, Journal of Microbiological Methods, 2010.
20. D. Boiroux, D.A. Finan, J.B. Jørgensen, N.K. Poulsen, H. Madsen: *Nonlinear Model Predictive Control for an Artificial Beta-Cell*, part of: *Recent Advances in Optimization and its Applications in Engineering*, Springer Verlag, 2010.
21. J.K. Møller, H. Madsen, J. Carstensen: *Stochastic differential equations for marine ecosystems modeling*, submitted, 2010.
22. M.W. Pedersen, U.H. Thygesen, H. Madsen: *Non-linear tracking in a diffusion process with a Bayesian filter and the finite element methods*. Computational Statistics & Data Analysis, 2010.
23. J.K. Møller, H. Madsen, J. Carstensen: *Identification of ecosystem parameters in a stochastic differential equation NP-model*, submitted to Royal Stat. Series C, 2010.