Curriculum Vitae: Anders Baun – July 2019

Anders Baun is professor in risk assessment of nanomaterials and head of the Environmental Fate and Effects of Chemicals Section at the Department of Environmental Engineering, Technical University of Denmark. He has a M.Sc. in Environmental Engineering (DTU, 1994) and holds a Ph.D. in application of biotests for characterization of contaminated water samples (DTU, 1998). His post doc. research focused at risk assessment, chemical, and biological aspects of groundwater pollution. His main research area has since 2006 been environmental risk assessment of nanomaterials. Here he works in the interface between science and regulation with a strong focus on novel experimental approaches for fate and effects assessment of nanomaterials.

In 2011 Anders Baun received one the European Research Council's Consolidator Grants for excellent European researchers. He has been the project leader at DTU for several research projects receiving both national and international funding, e.g. five EU FP7/H2020 projects.

He is the author of more than 250 scientific peer-reviewed contributions, 121 of which are ISI papers. Several of his papers are published in very high ranked journals like Nature Nanotechnology and Angewandte Chemie (invited review). Four of his papers are listed as Highly Cited Papers in Web of Science (2008-2018). In 2018 his ISI papers were cited more than 850 times and his current ISI H-index is 39.

Since 2012 he has been associate editor for Nanotoxicology one of the world's leading journals in toxicity of nanomaterials (ISI impact factor 7.33). He has been an expert member of several international committees on nanomaterials and risk, e.g. EU's scientific committee for new and emerging risks (SCENIHR) and the Swiss Research Foundation programme for nanotechnology

In 2008 he received the DADES Environmental Award, in 2011 the Statoil Technology Prize, and the World Cultural Council's Special Recognition Award 2012 for his research in environmental effects of nanomaterials. In 2009 he was awarded as "PhD Supervisor of the Year" at DTU.

Anders Baun has supervised 17 Ph.D. students (13 as main supervisor), two of which has been rewarded for the excellence of their PhD theses. He has supervised 42 M.Sc. projects at DTU and given more than 500 lectures at M.Sc. and B.Sc. level at Danish universities.

Personal data

Name:	Anders Baun
Affiliation:	Department of Environmental Engineering, NanoDTU, Building 113, Technical University of Denmark
Telephone:	+45 4525 1567 (direct); +45 4525 1600 (secr.)
E-mail:	abau@env.dtu.dk

Birthday:	27. August 1968
Education:	Ph.D., 1998 (Environmental Chemistry and Ecotoxicology) M.Sc., 1994 (Environmental and Chemical Engineering)
Languages:	Danish as mother tongue. Reads, speaks, and writes English fluently. Certified to teach English courses at university level. Understands, speaks and read German (language skills improved during stay at TU-Berlin as guest researcher). Understands and read Swedish and Norwegian. French at high school level. Understands Spanish and speaks it at beginner's level.

Orcid	0000-0003-1396-408X
ResearcherId	A-1330-2010

Key qualifications

Environmental risk assessment of nanomaterials and chemicals
Environmental toxicology and chemistry
Hazard and risk assessment of complex environmental pollutions
Development of decision support systems - chemical/nanomaterial risks
Toxicity testing of nanoparticles, chemicals, and complex environmental samples in aquatic toxicity tests (bacteria, algae, plants, crustaceans) and genotoxicity tests

Employment

2018-	Head of Section Environmental Fate and Effects of Chemicals, Department of Environmental Engineering, Technical University of Denmark
2011-	Professor in environmental risk assessment of nanomaterials, Department of Environmental Engineering, Technical University of Denmark
2013-2018	Head of Section Environmental Chemistry, Department of Environmental Engineering, Technical University of Denmark
2007-2011	Head of Innovation, Department of Environmental Engineering, Technical University of Denmark
2001-2011:	Associate professor in applied environmental chemistry, Department of Environmental Engineering, Technical University of Denmark
1998-2000:	Assistant research professor, Department of Environmental Science and Engineering/Groundwater Research Centre, Technical University of Denmark (Natural Attenuation in Leachate-Affected Groundwater)
1995-1998:	Ph.D. Student, Department of Environmental Science and Engineering, Technical University of Denmark (Application of biotests for characterization of water samples contaminated with xenobiotic organic compounds)
1996-1997:	Junior Scientific Adviser, Phuket Marine Biological Center, Thailand (Qualitative and quantitative studies of natural and anthropogenic pollutants in the Andaman Sea)
1995:	Guest scientist at Department of Ecology and Ecotoxicology, Technical University of Berlin, Berlin, Germany. (Ecotoxicological test methods, special emphasis on methods for assessment of the genotoxicity of environmental samples)

1994-1995: Research assistant, Department of Environmental Science and Engineering, Technical University of Denmark (Monitoring of pesticides and their metabolites in ground and surface water)

Education

1999:	Ph.D. in Ecotoxicology, Department of Environmental Science and Engineering, Technical University of Denmark. Title of thesis: Application of Biotests for Characterization of Water Samples Contaminated with Xenobiotic Organic Compounds.
1997:	Post-graduate course in Eco-genotoxicity: Test methods and Regulation, Roskilde University, Denmark.
1996:	Post-graduate course in Toxicology, Department of Pharmacology, University of Copenhagen, Denmark. Post-graduate course in Chemical Fate Modeling, Department of Environmental Science and Engineering, Technical University of Denmark. Course in Statistical Experimental Design. Department of Mathematical Modeling, Technical University of Denmark. 1996.
1995:	Course in Teaching and Learning, Technical University of Denmark.
1994:	M.Sc. in Chemical Engineering, Technical University of Denmark. Title of thesis: Evaluation of biodegradability tests.
1988:	High school leaving examination in Mathematics and Physics from Thisted Gymnasium.

Professional activities

Associate editor of Nanotoxicology (2012-current)

Associate editor of Water Research (2004-2008).

Invited expert member – ProSafe Nano task force Review on Reliability of Methods and Data for Regulatory Assessment of Nanomaterial Risks, OECD, Paris, France (2016)

Member of the Steering Committee of NRP (National Research Project) 64 "Opportunities and Risks of Nanomaterials", Swiss Research Foundation (2009-2015).

Invited expert member: “Nanosilver, Safety, Health and Environmental effects and role in antimicrobial Resistance”. SCENIHR, European Commission (2012-2013)

Member of the Swedish Foundation for Strategic Environmental Research (Mistra) task force for the research programme “Solving Environmental Problems with Nanotechnology (2012-2013)

Member of the Expert Group “Impact of nanomaterials on human health.” European Academies Science Advisory Council/ European Commission Joint Research Centre (2010-2011)

Appointed independent expert for the Natur- og Miljøankenævnet (Denmark) 2015-2018.

Organizer and teacher of continuing education courses in environmental risk assessment for the staff at the European Chemicals Agency, European Commission, Helsinki, Finland (2012-2013, 2017)

Member of scientific committee of the conference NanoToxicology 2010, Edinburgh, UK.

Member of scientific committee of the conference NanoToxicology 2014, Istanbul, Turkey.

Member of scientific committee of the conference NanoToxicology 2016, Boston, MA, USA.

Member of scientific committee of the conference NanoToxicology 2018, Neuss, Germany.

Member of the Advisory Board for NanoSphere Research Centre, Gothenburg University, Sweden (2009-2014)

Board member of NanoDTU (2008-2016)

Board member of the GAP funding committee, Copenhagen CleanTech Cluster (2010-2015)

PI at DTU in PATROLS, caLIBRAte, NanoREM, MARINA, NanoImpactNet and ENRHES. Six EU FP7/H2020 projects on nanomaterials and risks.

Member of the scientific committee for NanoImpactNet – QNano conference, “From theory to practice - development, training and enabling nanosafety and health research”, 27 February to 2 March 2012, Dublin, Ireland

Member of the scientific committee of the 3rd NanoImpactNet Conference, Lausanne, CH.

Invited speaker/keynote speaker at 29 international conferences/workshops, e.g. keynote speaker at the Gordon Research Conference on Environmental Nanotechnology, 2-7 June 2019, Newry, Maine, USA and the 13th International Conference of Environmental Effects of Nanoparticles and Nanomaterials, Vienna, Austria, 2-4 September 2019.

Evaluator of tenure track position at e.g., Hanyang University, South Korea; University of Wisconsin - Milwaukee, Wisconsin, USA; Leiden University, The Netherlands; Roskilde University, Denmark; Copenhagen University, Denmark.

Reviewer of research proposals for the Austrian Academy of Sciences, Danish Research Council (DK), Natural Environmental Research Council (UK), Environmental Protection Agency (UK), The Norwegian Research Council (N),

FORMAS (S), The Estonian Science Foundation (Estonia), The Finnish Research Council (FI), The Research Council of Switzerland (CH), Luxembourg Research Council (L), National Science and Engineering Research Council of Canada (CA).

Reviewer for Aquatic Toxicology, Chemosphere, Ecotoxicology, Environmental Pollution, Environmental Research, Environmental Toxicology, Environmental Science: Nano, Environmental Science and Technology, Environmental Toxicology and Chemistry, Journal of Chromatography A, Journal of Hazardous Materials, Journal of Nanoparticle Research, Journal of Regulatory Toxicology and Pharmacology, Nanoimpact, Nanomedicine, Nanotoxicology, Nature Nanotechnology, Science of the Total Environment, Waste Management, Water Research,.

Invited expert in the EU FP6 project RiskBridge on environmental impacts of nanotechnology.

Organizer of Nano-Ecotox-Risk session at 16th SETAC Europe Conference in The Hague, The Netherlands, 7-11 May 2006 & 17th SETAC Europe Conference in Porto, Portugal, 20-24 May 2007.

Member of expert group in nanomaterials, the Norwegian Technological Council (2007-2008).

Member of the working group “Aquatic Nanoscience and Nanotechnology” under the German Water Chemical Society (2007-2009).

Member of Danish Standards’ committee S-418 “Nanotechnology” (2007-2009)

Member of the international evaluation panel for the MTM Centre, Örebro University, Sweden (2005)

Co-chairman of the Working group 3 “Impact assessment” in COST 636 Xenobiotics in the Urban Environment. COST Action, EU Commission (2004-2008)

Member of expert group/steering committee: 1. Water quality criteria in Denmark, 2. Pesticides and the aquatic environment. Danish Environmental Protection Agency (2002-2008).

Member of the study board of the elite M.Sc. education Environmental Chemistry and Health (Copenhagen University) (2009-2015)

Member of the steering committee for the M.Sc. education in Environmental Chemistry (co-operation of four Danish universities) (2003-2008)

Member of the board of Danish Society for Environmental Chemistry (1997-2001).

Member of the research committee (2003-2007), the innovation committee (2004-2007) at Institute of Environment & Resources, DTU.

Member of the board (1995-97) and the educational committee (1998-2000) at

Department of Environmental Science and Engineering, Technical University of Denmark.

Member of the Danish Society of Engineers (1994-current)

Awards, prizes etc.

Exceptional Paper Award 2017 granted by Environmental Toxicology and Chemistry (Top 10 in 2017)

Course of the year 2012/2013. "Chemicals in the Environment". Department of Environmental Engineering, Technical University of Denmark, 2013.

World Cultural Council Special Recognition, 2012 (25,000 DKK)

European Research Council Starting Grant, 2011 (9,000,000 DKK)

The Statoil Technology Prize, 2011 (100,000 DKK)

Course of the year 2010/2011. "Environmental Engineer – Challenges and Solutions". Department of Environmental Engineering, Technical University of Denmark, 2011.

PhD Supervisor of the Year. Technical University of Denmark. 2009. (25,000 DKK)

DADES Environmental Award 2008. Aase & Ejnar Danielsen's foundation (250,000 DKK).

The Corrits Foundation Academic Travel Grant, 2008 (10,000 DKK)

Course of the year 2006/2007. "Environmental Chemistry and Ecotoxicology". Institute of Environment & Resources, Technical University of Denmark, 2007.

DuPont Science and Engineering Grant. 2006 (85,000 DKK)

The Gorm Petersen's Award for the Ph.D. thesis, Technical University of Denmark, 1999.

Papers in international peer reviewed journals

H-index ISI: 39; Total number of ISI-publications: 121; Total citations: 7,124 (6,804without self-citations); Average citations per paper: 58.9 (June 2019); 13 papers cited more than 100 timers; 82 papers cited more 10 times or more; 857citations in 2018. Four papers listed as "Highly Cited Papers" in WoS (2008-2018), one papers listed as "Highly Cited Papers" in WoS (2019)

ISI Web of Science advanced search (June 2019): Anders Baun rank in the Top 10 worldwide in the areas: nano AND ecotox* (no. 1) (number of papers 4,299); nano* AND environ* AND risk (no. 6) (number of papers 6,510)*

2019 Álvarez-Manzaneda, I., Baun, A., Cruz-Pizarro1, L., de Vicente, I. (2019) Ecotoxicity screening of novel phosphorus adsorbents used for lake restoration. Chemosphere, 222, 469-478.doi: 10.1016/j.chemosphere.2019.01.103

Da Silva, A., Jensen, K.A., Baun, A., Kembouche, Y., Tegner, U. (2019) Interaction of biologically relevant proteins with ZnO nanomaterials: a confounding factor for in vitro toxicity endpoints. In vitro Toxicology, 56,41-51. https://doi.org/10.1016/j.tiv.2018.12.016

Da Silva, A., Kembouche, Y., Tegner, U. Baun, A., Jensen, K.A. (2019) Data for investigating the iInteraction of biologically relevant proteins with ZnO nanomaterials: a confounding factor for in vitro toxicity endpoints. Data in Brief, 23, 103795. doi.org/10.1016/j.dib.2019.103795

Chhetria RK, Baun A, Andersen HR (2019). Acute toxicity and risk evaluation of the disinfectants performic acid, peracetic acid, chlorine dioxide and their by-products hydrogen peroxide and chlorite. Sci Total Environ, 677:1-8. doi: 10.1016/j.scitotenv.2019.04.350

Lammel, T., Thit. A., Cuic, X., Mouneyrac, C., Baun, A., Valsami-Jones, E., Sturve, J., Selck, H. (2019) Trophic transfer CuO NPs and CuCl2 enriched with a stable isotope tracer (65Cu) in a simplified food-chain: Transfer from sediment to worms (*Tubifex tubifex*) to fish (*Gasterosteus aculeatus*) . Enviro Sci: Nano (Submitted)

Hon S. Leong, Kimberly S. Butler, C. Jeffrey Brinker, May Azzawi, Steve Conlan, Christine Dufés, Andrew Owen, Steve Rannard, Chris Scott, Chunying Chen, Marina A. Dobrovolskaia, Serguei V. Kozlov, Adriele Prina-Mello, Ruth Schmid, Peter Wick, Fanny Caputo, Patrick Boisseau, Rachael M. Crist, Scott E. McNeil, Bengt Fadeel, Lang Tran, Steffen Foss Hansen, Nanna B. Hartmann, Lauge P. W. Clausen, Lars M. Skjolding, Anders Baun, Marlene Ågerstrand, Zhen Gu, Dimitrios A. Lamprou, Clare Hoskins, Leaf Huang, Wantong Song, Huiliang Cao, Xuanyong Liu, Klaus D. Jandt, Wen Jiang, Betty Y. S. Kim, Korin E. Wheeler, Andrew J. Chetwynd, Iseult Lynch, Sayed Moein Moghim, André Nel, Tian Xia, Paul S. Weiss, Bruno Sarmento, José das Neves, Hélder A. Santos, Luis Santos, Samir Mitragotri, Steve Little, Dan Peer, Mansoor M. Amiji, Maria José Alonso, Alke Petri-Fink, Sandor Balog, Aaron Lee, Barbara Drasler, Barbara Rothen-Rutishauser, Stefan Wilhelm, Handan Acar, Roger G. Harrison, Chuanbin Mao, Priyabrata Mukherjee, Rajagopal Ramesh, Lacey R. McNally, Sara Busatto, Joy Wolfram, Paolo Bergese, Mauro Ferrari, Ronnie H. Fang, Liangfang Zhang, Jie Zheng, Chuanqi Peng, Bujie Du, Mengxiao Yu, Danielle M. Charron, Gang Zheng and Chiara Pastore (2019) On the issue of transparency and reproducibility in nanomedicine. Nature Nanotechnology, 14, 626–635. https://doi.org/10.1038/s41565-019-0496-9.

Grieger, K., Jones, J., Hansen, S.F., Hendren, C.O., Jensen, K.A., Kuzma, J., Baun, A. (2019) Translating Best Practices from Nanomaterial Risk Analysis to Other Emerging Technologies. Nature Nanotechnology (accepted)

Pang, C., Mackevica, A., Tian, J., Feng, H., Lib, Z. and Anders Baun (2019). Release of dissolved metals from carbon cloth containing Ag/ZnO nanomaterials used for water purification. J. Nanoparticle Res. (submitted)

Rist, S., Baun, A., Almeda, R., Hartmann, N.B. (2019) Ingestion and effects of micro- and nanoplastics in blue mussel (Mytilus edulis) larvae. Marine Pollution Bulletin. 140, 423-430. doi.org/10.1016/j.marpolbul.2019.01.069

Schür, C., Rist, S., Baun, A., Mayer, P., Hartmann, N.B., Wagner, M., 2019. When fluorescence is not a particle: the tissue translocation of microplastics in Daphnia magna seems an artifact. Environmental Toxicology and Chemistry. 38 (7). 1495-1503 doi.org/10.1002/etc.4436

Sørensen, S.N., Baun, A., Burkard, M., Dal Maso, M., Hansen, S.F., Harrison, S., Hjorth, R., Lofts, S., Matzke, M., Nowack, B., Peijnenburg, W., Poikkimäki, M., Quik, J.T.K., Schirmer, K., Verschoor, A., Wigger, H., Spurgeon, D. (2019) Evaluating environmental risk assessment models for nanomaterials according to requirements along the product innovation stage-gate process. Environmental Sci: Nano; 6, 505-518; doi.org/10.1039/C8EN00933C

Thit, A., Lammel, T., Mouneyrac, C., Baun, A., Sturve, J., Selck, H. (2019) Trophic transfer of CuO NPs and dissolved Cu: from sediment to worms to fish: a proof of concept study. Environmental Sci: Nano. 6, 1140-1155. doi.org/10.1039/C9EN00093C

2018

Arvidsson, R., Furberg, A., Baun, A., Hansen, S.F., Molander, S. (2018. Proxy measures for simplified environmental assessment of manufactured nanomaterials. Environ. Sci. Technol. DOI:10.1021/acs.est.8b05405

Singh, P., Pandit, S., Garnæs, J., Tunjic, S., Mokkapati, V. R., Sultan, A., Thygesen, A., Mackevica, A., Mateiu, R.V., Daugaard, A.E., Baun, A., Mijakovic, I. (2018). Green synthesis of gold and silver nanoparticles from Cannabis sativa (industrial hemp) and their capacity for biofilm inhibition. International Journal of Nanomedicine, 13, 3571–3591. http://doi.org/10.2147/IJN.S157958

Singh, P., Pandit, S., Beshay, M., Mokkapati V.R.S.S., Garnæs, J., Olsson, M.E., Sultan, A., Mackevica, A., Mateiu, R.V., Lütken, H., Daugaard, A.E., Baun, A., Mijakovic, I. (2018). Anti-biofilm effects of gold and silver nanoparticles synthesized by the Rhodiola rosea rhizome extracts. ARTIFICIAL CELLS, NANOMEDICINE, AND BIOTECHNOLOGY (Accepted). https://doi.org/10.1080/21691401.2018.1518909

2017 Baun, A., Sayre, P., Steinhäuser, KG, Rose, J (2017). Regulatory relevant and reliable data for the environmental fate of manufactured nanomaterials. NanoImpact, 8, 1-10.

Chhetri, R. K., Baun, A. & Andersen, H. R. 2017 Algal toxicity of the alternative disinfectants performic acid (PFA), peracetic acid (PAA), chlorine dioxide (ClO2) and their by-products hydrogen peroxide (H2O2) and chlorite (ClO2-). International Journal of Hygiene and Environmental Health. 220(3):570-574

Hansen SF & Baun A (2017). Teaching Nano-safety. Nature Nanotechnol., 12, 596.

Hansen, S.F., Hjorth, R., Skjolding, L.M, Bowman, D.M., Maynard, A., Baun, A. (2017). A critical analysis of the Environmental Dossiers in the OECD Sponsorship Programme for Manufactured Nanomaterials. *Environ. Sci.: Nano*, 2017, **4**, 282-291 DOI:10.1039/C6EN00465B

Hansen, S.F., Sørensen, S.N., Skjolding, L.M., Hartmann, N.B., Baun, A. (2017) Revising REACH Technical Guidance Documents on aquatic ecotoxcity testing of engineered nanoparticles – recommendations from the EnvNano Project. Environ Sci Eur (2017) 29: 14. doi:10.1186/s12302-017-0111-3

Hartmann NB, Ågerstrand M, Lützhøft HCH, Baun A (2017) NanoCred: A transparent framework to assess the regulatory adequacy of ecotoxicity data for nanomaterials – Relevance and reliability revisited. NanoImpact,6, 81-89.

Hartmann NB, Rist S, Bodin J, Jensen LHS, Schmidt SN, Mayer P, Meibom A, Baun A (2017) Microplastics as Vectors for Environmental Contaminants: Exploring Sorption, Desorption, and Transfer to Biota. Integrated Environmental Assessment and Management, 13(3), 488-493.

Hjorth R, Hansen SF, Jacobs M, Tickner J, Ellenbecker M & Baun A (2017). The applicability of chemical alternatives assessment for engineered nanomaterials. Integrated Environmental Assessment and Management., 13, 177-187. 10.1002/ieam.1762
(Listed as Highly Cited paper in Web of Science)

Hjorth R, Coutris C, Nguyenc NHA, Sevcuc A, Gallego-Urrea JA, Baun A and Joner EJ (2017) Ecotoxicity testing and environmental risk assessment of iron nanomaterials for sub-surface remediation – Recommendations from the FP7 project NanoRem. Chemosphere 182, 525-531.

Hjorth R, Skjolding LM, Sørensen SN, Baun. A (2017) Regulatory adequacy of aquatic ecotoxicity testing of nanomaterials. NanoImpact, 8, 28-37.

Jensen LHS, Thit A, Skjolding LM, Sørensen SN, Købler C, Mølhave M, Baun A (2017). Not all that glitters is gold – an electron microscopy study on uptake of gold nanoparticles in Daphnia magna. Environ. Toxicol. Chem.. 36(6):1503-1509 DOI: 10.1002/etc.3697
(2017 Exceptional Paper Award granted by Environmental Toxicology and Chemistry (Top 10 in 2017))

Nolte TM, Hartmann NB, Kleijn JM, Garnæs J, van de Meent D, Hendriks AJ, Baun A (2017). Physical interaction between plastic nanoparticles and green algae as influenced by surface functionalization. Aquatic Toxicology. 183:11-20
(Listed as Highly Cited paper in Web of Science)

Rist, S., Baun, A., Hartmann, N.B. (2017) Ingestion of micro and nanoplastics in Daphnia magna – quantification of body burdens and assessment of feeding rates and reproduction. Environmental Pollution. 228, 398-407.

Skjolding, Lars Michael; Ašmonaitė, G; Jølck, Rasmus Irming; Andresen, Thomas Lars; Selck, H.; Baun, Anders; Sturve, J. (2017) An assessment of the importance ofexposure routes to the uptake and internal localisation of fluorescent nanoparticles in zebrafish (Danio rerio), using light sheet microscopy. Nanotoxicology, Vol. 11, No. 3, 2017, p. 351-359.

Thit, A., Huggins, K., Selck, H., Baun, A. (2017) Acute toxicity of copper oxide nanoparticles to Daphnia magna under different test conditions. Toxicol. Environ. Chem, 99, 665-679.

2016 Brinch, A, Hansen, SF, Hartmann, NB & Baun, A (2016) EU Regulation of Nanobiocides: Challenges in Implementing the Biocidal Product Regulation (BPR). Nanomaterials, vol 6, no. 2, 33., 10.3390/nano6020033

Cupi, D, Hartmann, NB & Baun, A (2016) Influence of pH and media composition on suspension stability of silver, zinc oxide, and titanium dioxide nanoparticles and immobilization of Daphnia magna under guideline testing conditions. Ecotoxicology and Environmental Safety, vol 127, pp. 144-152., 10.1016/j.ecoenv.2015.12.028

Cupi, D & Baun, A (2016), Methodological considerations for using umu assay to assess photo-genotoxicity of engineered nanoparticles. Mutation Research - Genetic Toxicology and Environmental Mutagenesis, vol 796, pp. 34-39., 10.1016/j.mrgentox.2015.11.009

Hansen, SF, Heggelund, LR, Revilla Besora, P, Mackevica, A, Boldrin, A & Baun, A (2016) Nanoproducts – what is actually available to European consumers? Environmental Science: Nano, vol 3, no. 1, pp. 169-180., 10.1039/C5EN00182J

Hjorth, R, Sørensen, SN, Olsson, ME, Baun, A & Hartmann, NB (2016) A certain shade of green: Can algal pigments reveal shading effects of nanoparticles? Integrated Environmental Assessment and Management, vol. 12, no. 1, pp. 200-202., 10.1002/ieam.1728

Hund-Rinke, K., Baun, A., Cupi, D., Fernandes, T., Handy, R., Kinross, J., Navas, J., Schlich, K., Shaw, B., Scott-Fordsmand, J. (2016). Regulatory Ecotoxicity Testing of Nanomaterials – Proposed Modifications of OECD Test Guidelines Based on Laboratory Experience with Silver and Titanium Dioxide nanoparticles. Nanotoxicology 10(10):1442-1447. DOI:10.1080/17435390.2016.1229517

Liguori, L., Hansen, S.F., Baun, A., Jensen, K.A. (2016) Control banding tools for occupational exposure assessment of nanomaterials – Ready for use in a regulatory context? Nanoimpact, 2, 1-17. (listed as highly cited paper in the journal)

Sakka. Y., Skjolding, L.M., Mackevica, A., Filser, J., Baun, A. (2016) Behavior and chronic toxicity of two differently stabilized silver nanoparticles to Daphnia magna, Aquatic Toxicology, 177, 526–535, http://dx.doi.org/10.1016/j.aquatox.2016.06.025.

Skjolding, L.M., Sørensen, S.N., Hartmann, N.B., Hjorth, R., Hansen, S.F., Baun, A. (2016) A Critical Review of Aquatic Ecotoxicity Testing of Nanoparticles – The Quest for Disclosing Nanoparticle Effects: Angewandte Chemie International Edition, 55(49):15224-15239. DOI: 10.1002/anie.201604964

Skjolding, L.M., Sørensen, S.N., Hartmann, N.B., Hjorth, R., Hansen, S.F., Baun, A. (2016) A Critical Review of Aquatic Ecotoxicity Testing of Nanoparticles – The Quest for Disclosing Nanoparticle Effects: Angewandte Chemie 55(49):15224-15239. DOI: 10.1002/anie.20160496

Sørensen SN, Engelbrekt C, Lützhøft HCH, Jiménez-Lamana J, Noori J, Alatraktchi FA, Delgado CG, Slaveykova VI, Baun A (2016) A multi-method approach for disclosing algal toxicity of platinum nanoparticles. Environ. Sci. Technol., 50(19), 10635-10643. DOI: 10.1021/acs.est.6b01072

Sørensen, S.N., Lützhøft, H.C.H., Rasmussen, R., Baun, A. (2016) Acute and chronic effects from pulse exposure of D. magna to silver and copper oxide nanoparticles. Aquatic Toxicology. 180, 209-217.

2015 Cupi, D., Hartmann,N.B., Baun, A. (2015). The influence of natural organic matter and aging on suspension stability in guideline toxicity testing of ZnO, TiO2, and Ag nanoparticles with Daphnia magna. Environ Toxicol Chem 34(3):497-506.

Hansen, SF & Baun, A 2015, 'DPSIR and Stakeholder Analysis of the Use of Nanosilver' NanoEthics, vol 9, no. 3, pp. 297-319., doi:\\10.1007/s11569-015-0245-y

Philippe Hartemann, Peter Hoet, Ana Proykova, Teresa Fernandes, Anders Baun, Wim De Jong, Juliane Filser, Arne Hensten, Carsten Kneuer, Jean-YvesMaillard, Hannu Norppa, Martin Scheringer, Susan Wijnhoven (2015) Nanosilver: Safety, health and environmental effects and role in antimicrobial resistance. Materials Today, Volume 18, Issue 3, Page 122–123.

Hartmann, NB, Jensen, KA, Baun, A, Rasmussen, K, Rauscher, H, Tantra, R, Cupi, D, Gilliland, D, Pianella, F & Riego Sintes, JM 2015, 'Techniques and Protocols for Dispersing Nanoparticle Powders in Aqueous Media—is there a Rationale for Harmonization?' Journal of Toxicology and Environmental Health. Part B: Critical Reviews, vol 18, no. 6, pp. 299-326., 10.1080/10937404.2015.1074969

Nielsen, K., Baun, A., Kalmykova, Y, Strömwall, A.M., Eriksson, E. (2015) Particle Phase Distribution of Polycyclic Aromatic Hydrocarbons in Stormwater - Using Humic Acid and Iron Nano-sized Colloids as Test Particles. Science of the Total Environment (In Press)

Mackevica, A., Skjolding, L.M., Gergs, A., Palmqvist, A., Baun, A. (2015) Chronic toxicity of silver nanoparticles to Daphnia magna under different feeding conditions. Aquatic Toxicology, 161, 10-16.

Sørensen, S.N. & Baun, A. (2015). Controlling silver nanoparticle exposure in algal toxicity testing – a matter of timing. Nanotoxicology, 9, 201-209.
3rd most downloaded paper in Nanotoxicology 2015 (773 times)

Sørensen, SN, Hjorth, R, Giron Delgado, C, Hartmann, NB & Baun, A 2015, 'Nanoparticle ecotoxicity—physical and/or chemical effects?' Integrated Environmental Assessment and Management, vol 11, no. 4, pp. 722-724., 10.1002/ieam.1683

2014 Boldrin, A., Hansen, S.F., Baun, A., Hartmann, N.B., Astrup, T. (2014) Environmental exposure assessment framework for nanoparticles in solid waste: definition, quantification, classification & characterization of nanowaste. J. Nanoparticle Res. 16, 2394. Doi :10.1007/s11051-014-2394-2

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2004 Ledin, A., Auffarth,K., Boe-Hansen,R., Eriksson,E., Albrechtsen,H.-J., Baun,A. & Mikkelsen,P.S. (2004): Brug af regnvand opsamlet fra tage og befæstede arealer - Udpegning af relevante måleparametre. (Use of rainwater collected from non-permeable surfaces - identification of parameters relevant for a monitoring program, in Danish). Økologisk byfornyelse og spildevandsrensning nr. 48, Miljøstyrelsen, København. pp. 1-112.

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2002 Arnbjerg-Nielsen,K., Hvitved-Jacobsen,T., Ledin,A., Auffarth,K., Mikkelsen,P.S., Baun,A. & Kjølholt,J. (2002): Bearbejdning af målinger af regnbetingede udledninger af Npo og miljøfremmede stoffer fra fællessystemer i forbindelse med NOVA 2003. (Discharges of urban runoff from combined sewage systems - Evaluation of measurements from NOVA 2003 program of NPOs and xenobiotic organic compounds, in Danish). Miljøstyrelsen, København. Miljøprojekt, 701. pp. 1-78. http://www.mst.dk/udgiv/Publikationer/2002/87-7972-159-1/pdf/87-7972-160-5.PDF

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2001 Baun, A., Kirkeby, J.T, Kjeldsen, P., Trapp, S., Jensen, D.L., Christensen, T.H., Olsen, S.I., Hauschild, M.Z. (2001). Waste related emission scenarios for risk assessment of chemicals - A background document for revision of the EU Technical Guidance Document on risk assessment of new and existing substances. Arbejdsrapport, Miljøstyrelsen, Danmark.

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1999 Baun, A. and Nyholm, N. (1999). Miljøvurdering af kemiske stoffer (Environmental risk assessment of chemicals). Course material for DTU course in Environmental Chemistry. 54 pp. Department of Environmental Science and Engineering, Technical University of Denmark, Lyngby, Denmark (in Danish).

1997 Baun, A., Bussarawit, N., and Nyholm, N. (1997). Screening of Pesticide Toxicity in Freshwater from Chalong Area, Phuket Island, Thailand. Danida Scientific Cooperation Programme, Copenhagen, Denmark.

Baun, A., Andersen, J.S., and Nyholm, N. (1997). Improved procedure for correcting the genotoxicity response in the umu-c test for growth inhibitory effects. ISO working document, ISO TC147/SC5/WG9 N19. DIN, Berlin, Germany.

1996 Dohmann, M., Schröder, H.F., Forge, F., Rivera, J., Baun, A., Qualmann, S., and Nyholm, N. (1996): Pesticides and their metabolites. Characterization and monitoring in surface and groundwater by combined chemical analysis (GC/MS, FAB/MS, TSP/MS, ESI/MS, APCI/MS) and bioassays (toxicity, genotoxicity, biodgradability). Environmental Research Programme. Final Report. Rheinisch-Westfälische Technische Hochschule, Institut für Siedlungswasserwirtschaft, Aachen, Germany.

1995 Nyholm, N., Berg, U., Ingerslev, F., and Baun, A. (1995). Evaluation of biodegradability test methods. In: Development of (eco)toxicity tests (ed. K. Louekari and E. Tiberg). Nordic Council of Ministers, TemaNord 1995:623, p. 35-38, Copenhagen, Denmark.

Abstracts, posters, and other contributions to published proceedings

Author and co-author of more than 200 contributions (oral and poster presentation)

Teaching experience

Nominated by students as "Teacher of the year" every year in 2011-2015 and again in 2018, Technical University of Denmark.

Awarded "Course of the year" for the courses in Chemical in the Environment (2013), Environmental Engineering – Challenges and Solutions (2010/2011) and Environmental Chemistry & Ecotoxicology (2006/2007). Technical University of Denmark.

Certified by Centre for Internationalisation and Parallel Language Use, Copenhagen University to teach English-medium courses with the following evaluation: "The lecturer has demonstrated excellent English language proficiency for university teaching".

Supervisor of more than 100 student projects (B.Sc. and special courses) and supervisor of more than 40 M.Sc. theses.

Co-author of "The Chemistry of Nature – Processes and Impacts" (in Danish) – a textbook for M.Sc. students in environmental chemistry.

Co-author of "Nanotechnological Horizons" (in Danish) – a textbook for high-school students.

More than 500 lectures at DTU in the period 1995-2019 in the following courses:

Chemicals in the Environment
Chemistry at the Nanoscale
Design of Biotechnological and Environmental Processes
Environmental Chemistry and Ecotoxicology
Environmental Engineering – Challenges and Solutions
Environmental Management (In the education in "Teknisk Miljøledelse")
Environmental Risk Assessment of Chemicals
Environmental and Human Health Risk Assessment of Chemicals (elite M.Sc. course offered in collaboration with Copenhagen University)
Introduction to Environmental Science and Technology
Sustainable production – methods and tools for industrial environmental management
Nanotechnology and the environment
Nanotechnology, design, society and environment

Main teaching responsibilities at DTU Environment:

Coordinator and lecturer in the M.Sc. courses Environmental Chemistry and Ecotoxicology (12230), Environmental Risk Assessment (12235) and Chemicals in the Environment (12237).

Coordinator and lecturer in the M.Sc. course Nanotechnology and the Environment (12600) (2008-2013 and 2016).

Coordinator and lecturer in the M.Sc. course Environmental and Human Health Risk Assessment of Chemicals (12236). Part of Copenhagen University Elite

M.Sc. in Environment and Health. (2010-2014).

Lecturer in the B.Sc. course Environmental Engineer – Challenges and Solutions (12000) (2006-2018)

Lecturer at master course in “Fire Safety”. Technical University of Denmark (2002-2006).

Course secretary (1997-1999), coordinator of exercises (1996-1999) and teaching assistant (1995-98) in Environmental Chemistry.

Implemented eLearning objects in courses 12230, 12235, 12236 and 12237 in 2010-2011.

Coordinator and lecturer at continued education course: Environmental Risk Assessment of Nanomaterials – Fate and Effects. Held for staff members of the European Chemicals Agency (ECHA) and representatives from EU member states. November 2012/Januar 2013/September 2013/October 2013/January 2017, ECHA, Helsinki, Finland.

Coordinator and teacher in PhD course: Fate and Behaviour of Nanomaterials. Part of NanoImpactNet, 19-22 July 2010, Bratislava, Slovakia (25 participants).

Lecturer and supervisor at PhD-courses in Environmental risk assessment of chemicals (Technical University of Denmark/Royal Danish Veterinary and Agricultural University, 2002-2004).

Organizer and lecturer at post-graduate courses in nanotechnology, environmental risk assessment of chemicals and data searching for environmentally relevant properties (2001-2008). Participants from industry, environmental authorities, and consultancy companies.

Lecturer at continued education courses in Environment & Nanotechnology (Miljøcenter Århus, 2008), Environmental Management (2003, Danish Ministry of Defense), Chemicals in Wastewater (2003, Avedøre Spildevandscenter), and Hazard assessment of Chemicals (2002, County of Copenhagen).

External examiner the Copenhagen University, University of Southern Denmark and at the former Danish University of Pharmaceutical Science and the Royal Danish Veterinary and Agricultural University (>15 B.Sc. and >30 M.Sc. projects in environmental chemistry)

External examiner at Roskilde University in a M.Sc. courses in Ecotoxicology and for B.Sc. and M.Sc. projects.

External examiner at the Chinese University of Hong Kong (2003). M.Sc. thesis: “Chemcial and Ecotoxicological Characterization of landfill leachate” by W.S.K. Raymond.

Ph.D. supervision and examination

PhD supervisor for:
a. Martin Krayer von Krauss “An analytical framework for the assessment of uncertainty in regulatory sciences” (2001-2005)

b. Anne Munch Christensen: “Risk assessment of point-source pollution with pharmaceuticals” (co-supervisor, 2004-2009)

c. Larisa Maya Altamira “Development of a Flexible BioProcess for Handling and Recycling Seasonal Industrial Wastewaters” (2004-2008)

d. Steffen Foss Hansen “Risk Assessment of Nanomaterials – Too little, too late?” (2005-2009)

e. Annika Sidelmann Fjordbøge “Remediation of contaminated groundwater with zero-valent iron” (co-supervisor 2006-2009)

f. Khara Grieger “Risk assessment framework for nanotechnology” (2007-2011)

g. Nanna B. Hartmann “Ecotoxicity of nanoparticles” (2007-2011)

h. Rikke Tjørnhøj “Environmental quality standards for pesticides” (co-supervisor 2007-2012)

i. Denisa Cupi: “Testing of engineered nanoparticles” (2011-2014)

j. Katrine Nielsen: “ Characterisation and treatment of nano-sized and colloidal xenobiotic pollution in stormwater” (co-supervisor 2012-2015)

k. Sara Nørgaard Sørensen: “Nanoecotoxicology – characterization and control of test conditions” (2012-2015)

l. Biase Liguori: “Qualitative and Quantitative Methods for Evaluation of Human Exposure to Nanomaterials ” (2012-2015)

m. Lars Michael Skjolding: “Bioaccumulation of engineered nanoparticles” (2012-2015)

n. Rune Hjorth: “Nanomaterials and groundwater remediation” (2013-2016)

o. Sinja Rist: “Uptake and effects of nano- and micro-particles” (2015-2018)

p. Larisa Xanthopoulou “Circular Economy: Life cycle assessment of chemicals in material cycles” (2017-2019)

q. Emilie da Silva “An in vitro method for toxicity testing of inhaled particles” (2017-2020)

Examiner for PhD-theses:
a. John Jensen: “Ecotoxicological effect assessment and risk characterization of selected contaminants in sewage sludge”. Danish University of Pharmaceutical Sciences, Copenhagen, Denmark, 2004.

b. Tolessa Deksissa Chuco “Dynamic integrated modeling of water quality and fate and effects of organic contaminants in rivers”, 2004, Ghent University, Belgium.

c. I. M. Rivas “Cometabolic degradation of thiophene with benzene as primary substrate”, 2001, Technical University of Denmark.

d. Leah Wollenberger “Toxicity tests with crustaceans for detecting sublethal effects of potential endocrine distrupting chemicals”, 2005, Technical University of Denmark.

e. Ahmed Suheyl Ucisik “Uptake of chemicals and metabolism kinetics related to toxic effects and consideration of phytoremediation as a remediation option, 2007, Technical University of Denmark.

f. Virginia Sánchez Arias. “Biological treatment of organic wastes”. Pre-evaluation committee, 2009, University of Castilla-La Mancha, Ciudad Real, Spain.

g. Antonio Franco “Environmental exposure modeling for risk assessment of ionizable organic chemicals”, 2010, Technical University of Denmark.

h. Emiliano Bruni “Improved anaerobic digestion of energy crops and agricultural residues”, 2010, Technical University of Denmark.

i. Rickard Arvidsson “ Towards prospective exposure modeling of nanoparticles – applying particle flow analysis and kinetic exposure modeling for the cases of TiO2 and Ag nanoparticles”, 2010, Chalmers, Gothenburg, Sweden.

j. Rikke Gleerup Ovesen. “Biomedicine in the environment: Quantification, sorption and ecotoxicology of cyclotides”, 2011, Copenhagen University, Copenhagen, Denmark.

k. Chenfang Pang. “Risk Assessment of Nanosized Metals in the Aquatic Environment.” 2012. Roskilde University, Roskilde, Denmark

l. Karen Søgaard Christiansen. “Improvements in terrestrial and freshwater ecotoxicity assessment of potentially toxic elements in the life cycle impact assessment.” 2012. Copenhagen University, Copenhagen, Denmark.

m. Karina Knudsmark Jessing. “Biomedicine production: Is it environmentally safe?”2012. Copenhagen University, Copenhagen, Denmark.

n. Yehia Sayed El-Temsah. “Remediation efficiency and ecotoxicological effects of nano-sized zero-valent iron (nZVI) in polluted soil.” Norwegian University of Life Science, Oslo, Norway. 2013.

o. Stine N. Schmidt. “Linking toxicity to chemical activity”. Aarhus University, Roskilde, Denmark. 2013.

p. Yusuf Nor. “Gold nanoparticles: Synthesis, characterisation and their effect on Pseudomona flourescens”. The University of Birmingham, Birmingham, UK. 2013.

q. Mai-Britt Bjerager-Andersen. “Azole fungicides as synergists in the aquatic environment”. Copenhagen University, Denmark. 2016.

r. Yvonne Sakka “Abiotic and biotic influences on silver nanoparticle fate and effects in aquatic model ecosystems”. University of Bremen, Germany. 2016.

s. Mona Donelly “Mechanisms underlying the toxicity of metal nanoparticles: in vitro and in vivo approaches” Universidad Complutense de Madrid, Madrid, Spain. 2017.

t. Anzhela Malysheva “Interdisciplinary approach to nanotoxicology: Analytical studie into complex behaviour of nanoparticles during toxicity testing” University of South Australia & Copenhagen University. 2017.

u. Paul Mines 2017
v. Dongah Ko 2018
x. Kristoffer Dalhoff 2018

Funded projects - project management (PM), project participation (PP)

(PP) MISTRA Nano II. Swedish Environmental Strategic Research Council. (total: 50 mill SEK; DTU share: 4.2 mill SEK). 2019-2023.

(PM) PATROLS. EU H2020 (total 49.0 mill DKK; DTU share: 3.2 mill DKK). 2018-2022.

(PM) TIE DONG. Toxicity Identification Evalualuation. Orsted Oil Pipe (0.9 mill DKK). 2018.

(PM) RealNano. Ørsted COFOUND post doc grant: Chengfang Pang (total: 1.1 mill DKK) 2017-2019.

(PM) Non-animal testing for pulmonary effect of nanoparticles and chemicals. National Research Centre for the Working Environment (1.2 mill DKK)

(PM) MENACE. Formas Sweden (DTU share: 0.16 mill DKK). 2017-2020

(PM) caLIBRAte. EU H2020 (total 49.0 mill DKK; DTU share: 2.7 mill DKK). 2016-2020.

(PM) NanoTransfer. Villum Foundation (total:4.9 mill DKK; DTU share: 0.12 mill DKK). 2016-2019.

(PM) ProSafe Nano. EU H2020 (DTU share: 0.15 mill DKK). 2016.

(PM) Review of nanoecotoxicology. German Chemical Association (0.07 mill DKK). 2016.

(PM) Nano- and microparticles – uptake and effects in aquatic organisms. DTU/EPFL collaboration (Total: 1.2 mill DKK). 2016-2017.

(PM) μPlast – Microplastics in wastewater. DK EPA (total: 1.8 mill DKK; DTU share: 0.8 mill DKK). 2016-2017.

(PM) Nanomaterials and OECD testing. DK EPA (DTU share: 0.5 mill DKK). 2015.

(PM) DaNa 2.0 (DTU share: 0.45 mill DKK). 2013-2017.

(PM) Nanomaterials and OECD testing. DK EPA (DTU share: 0.1 mill DKK). 2013.

(PP) SUN – Sustainable Development of Nanotechnology. . EU FP7 (Total: DKK 80 mill; DTU share: DKK 3.0 mill.). 2013-2017.

(PM) Nanomaterials - Occurrence and effects in the Danish Environment. DK EPA (Total: DKK 2.5 mill; DTU share: DKK 0.9 mill.). 2013-2015.

(PM) NANOREM - Taking Nanotechnological Remediation Processes from Lab Scale to End User Applications for the Restoration of a Clean Environment. EU FP7

(Total: DKK 78 mill; DTU share: DKK 1.3 mill.). 2013-2016.

(PM) Exposure Assessment for Nanomaterials, Danish NanoSafety Centre, Arbejdsmiljøfonden (DKK 1.1 mill.). 2012-2015.

(PM) Environmental Effects and Risk Evaluation of Engineered Nanoparticles. European Research Council (DKK 9.0 mill.). 2011-2015.

(PM) Safe Handling of Nanomaterials ("Virkemidler til sikker håndtering af nanomaterialer"). Arbejdsmiljøfonden (DKK 1.37 mill.). 2011-2013

(PM) Good Chemical Regulation. Velux Foundation (Total: 1.9 mill.; DTU share: DKK 0.65 mill.). 2011-2014.

(PM) MARINA - Management and Risk Assessment of Nanomaterials. EU FP7. (Total: DKK 90 mill.; DTU share: DKK 1.33 mill.). 2011-2015.

(PM) Kortlægning af basisviden om eksponering og potentielle miljø- og sundhedsrisici for udvalgte nanomaterialer. Danish Enviromental Protection Agency (DKK 0.35 mill.). 2010-2011.

(PM) NanoRiskCat – a conceptual model for risk classification of nanomaterials. Danish Environmental Protection Agency (DKK 0.5 mill.). 2010-2011.

(PM) Detection, Fate, and Uptake of Engineered Nanoparticles in Aquatic Systems. Funded by CEFIC (DKK 0.8 mill.). 2009-2011.

(PM) NanoImpactNet. EU FP7 coordination action (Total : DKK 67.5 mill., DTU share: DKK 0.5 mill.). 2007-2012.

(PM) Engineered Nanoparticles - Review of Health and Environmental Safety (ENRHES). EU FP7 coordination action (Total: DKK 4.0 mill.; DTU share: DKK 0.4 mill.).2008-2009.

(PM) Effects of pulse exposure. Danish Environmental Protection Agency (DKK 850,000). 2005-2007.

(PM) Statistical analyses for biological tests. Danish Environmental Protection Agency (DKK 110,000).2006-2008.

(PM) Environmental quality standards for pesticides. Research project funded by DuPont (DKK 650,000). 2008-2012.

(PP) DayWater – adaptive decision support system for the integration of stormwater source control into sustainable urban water management strategies. Ten European partners – Danish project: Peter Steen Mikkelsen, Anders Baun and Anna Ledin, M&R DTU. Project financed by EU RTD 5th framework programme.(DK project: EURO 292,000). 2002-2005.

(PM) Effects of toxic compounds in urban storm water runoffs. Anders Baun and K.

Ole Kusk, M&R DTU; Jesper Kjølholt and Frank Stuer-Lauridsen, COWI Consult. Project financed by the Danish EPA. (DTU part: 120.000). 2002-2003.

(PM) Emission from substances accumulated in the technosphere and disposal of waste. Thomas H. Christensen and Anders Baun, M&R DTU; Andreas Ahrens, Ökopol GmbH, Hamburg, Germany. Project financed by the Danish EPA. (DKK 200.000). 2002.

(PP/PM) Natural Attenuation in Leachate-Affected Groundwater. Thomas H. Christensen, Anders Baun, Anna Ledin, Niels Nyholm and Poul L. Bjerg, M&R DTU. Project financed by the Groundwater Research Centre, DTU/STVF. (DKK 2.100.000). 1998-2001.

(PP/PM) Screening of pesticide toxicity in polluted surface water. Anders Baun and Niels Nyholm, M&R DTU; Nipawan Bussarawit and Suwanna Panutrakul, Phuket Marine Biological Centre, Phuket, Thailand. Project financed by DANIDA. (DKK 850.000). 1996-1998.

(PM) Monitoring of pesticides and their metabolites in ground and surface water by combined chemical analyses and bioassays. H.F. Schröder, RWTH, Aachen, Germany; Anders Baun and Niels Nyholm, M&R DTU; J. Rivera, CSIC, Barcelona, Spain. EU Project financed by the Environmental Research Programme (DK project: DKK 850.000). 1994-1996.

(PM) Ecotoxicological effects of pesticides in groundwater and surface water from Høfde 42, Harboøre Tange, Denmark. Anders Baun and K. Ole Kusk, M&R DTU. Project financed by the County of Ringkjøbing (DKK 125.000). 2003.