

Education

2007-2009

Assistant Professor, Aarhus University

2000

Ph.D. Microbial Ecology, Bioscience, Aarhus University.

1999

Exam Oecon, Business Economy, Aarhus University (Institute of Economics)

1997

MSc. Biology, Aarhus University

Employment

10-2013

Associate Professor, Head of Biological and Chemical Engineering Section, Department of Engineering, Aarhus University

2011-2013

Head of Section Environmental Biotechnology, Danish Technological Institute

2009-2011

Consultant R&D, Danish Technological Institute

2007-2009

Assistant Professor, Aarhus University

2004- 2007/3

Clinical Embryologist and Project Scientist, Aarhus University Hospital

2000/9-2004

Manager Business development, Unisense A/S

1996-2000/8

Ph.D Scholar, Biological Institute, Microbial Ecology, Aarhus University

1994

Teaching assistant, Aarhus University

1990-1991

Technical assistant (plant genetics and breeding) Nordic Seed

Academic research

2007-2009

Post Doctoral Research at AU, Department of microbiology. Applied research on biological airfilters and animal slurry chemistry and microbiology.

2004-2006

2,5 years as part time (approx. 50%) clinical researcher at Aarhus University Hospital, Fertility clinic and Clinical Institute.

Research area: preimplantation embryo physiology including method and technology development, clinical epidemiology and related research.

1996-2000

Ph.D. research (4+4 model). Microbial Ecology, nitrogen transformation in marine and aquatic systems.

Industrial research

2009-2013

Industrial research and development at Danish Technological Institute. Research, development and documentation within environmental biotechnology and technology including water treatment technologies, anaerobic digestion and substrate pre-treatment, biorefining, various aspects of environmental technology.

2004-2006

Technology development for Unisense A/S (techniques for measuring embryo oxygen consumption). Collaborative research projects (clinical epidemiology) with pharmaceutical industry

2000-2003

Industrial research at Unisense A/S. Applied research on microsensor development and applications, Unisense A/S contribution in a large EU projects (ICON), research on bovine embryos at former Danmarks Jordbrugsforskning.

Leadership

1-2012

Appointed Head of Section, Environmental Technology at Life Science division DTI. The job responsibility includes line management, section economy, budgeting and recruiting academic staff.

2011

Selected by board of directors at Danish Technological Institute for "Talentprogram" leadership and business development training. (ECTS points ?)

Recruiting

2011-2013

4 academic positions filled 2 ongoing recruitments. Course in job analysis prior to recruiting, course in interview technique related to recruiting.

Teaching and supervision

2014 -

Teaching Waste Water Treatment in the 5 ECTS course "Applied Microbiology"

Teaching the 5 ECTS course "Industrial Fermentation"

Teaching in the 5 ECTS course "Air Quality Engineering"

2011-2012

External supervisor at Aarhus School of Engineering (supervision of a total of 6 diploma engineering students, all graduated with note 12)

2009

Completed "Kursus i Universitetspædagogik for adjunkter"

2007-2009

Geomicrobiology (10 ECTS) 2008 and Biotechnology (5 ECTS) 2009, both with excellent student rating.

Co-supervision of master students, Ph.D. students.

2005

Clinical embryology at the Organon Fertility School (2006)

1996-2000

Lectures, laboratory courses, and excursions in General Microbiology, Microbial Ecology, Microbial Physiology and Aquatic Microbiology at the University of Aarhus, Denmark (During Ph.D scholarship 1996-2000)

Related Professional Experience, Activities

Reviewer for MEPS (1998-2009) and Human Reproduction (since 2005-2010)

Scientific expert, Danish Environmental Technology Verification (DAN-ETV) 2009.

Co-author of Medical Technology Verification (MTV) reports for the Danish National Board of Health (2005-2007).

Responsible for patenting and IPR at Unisense A/S (2000-2004) and completed Patent Course (Patentkursus) (2001) AU og Østjysk Innovation. Extended experience with the patenting process.

Board member Unisense A/S (2002) and Alpha Biobank Aps (2005)

Co-founder owner and board member at start up biotech company Alpha Biobank Aps (2005). The company was successfully taken over by another biotech company in 2006.

Task force member for certification (DS ISO) of clinical procedures at the Fertility Clinic, Aarhus University hospital. (2003-2004)

Awarded for best article series of the year by Danish technical periodical "Water and Soil" (1998)

Research interest and expertise

Ecology:

Microbial ecology (analysis of microbial activity, metabolic pathways, inhibition). Microbial nitrogen, carbon and sulfur cycling in natural system and industrial and agricultural systems and installations. Microbial production of green house gasses.

Microphysiology and microscale chemical gradients.

Industrial biotechnology:

Biological and chemical waste water treatment. Biogas process and technology (mechanics, chemistry and microbiology of the process).

Medical biotechnology:

Physiology of pre implantation embryos and clinical embryology and epidemiology. Experimental design of trials.

Selected courses

2009

Adjunkt kursus i universitetspædagogik

2001

Patentkursus AU og Østjysk Innovation

Recent large grants obtained

Obtained > 1 million DKK, 2010-2012, personally and under my supervision:

BIOMAN (Research for the benefit of SME EU FP7) > 5 million DKK.

Technology for hospital waste water treatment (MUDP) 4,6 million DKK

BIOCONVAL (Grønt Udvikling og Demonstrations Program GUDP) 6,9 million DKK

Lavenergivask, rent og sikkert (Fornyelsesfonden) 7,3 million DKK

Selective hydrolysis for waste water sludge (VTU) 1 mio DKK

Examples of funding sources where I have extended experience:

-Det Strategiske Forskningsråd (National Strategic Research Council)

-EUDP, GUDP, MUDP

-VTU fonden

-EcoInnovation (Miljøstyrelsen)

-Fornyelsesfonden grønne løsninger

-Højteknologifonden

-Innovationskonsortier

-Videnkuponer (store og små)

International:

-FP 7 EU programmes (eg KBBE)

-R4SME

-Eurostars

Publications

PUBLICATIONS, PEER REVIEW

Ottosen LDM, Susanne Juhler, Lise Bonne Guldborg, Anders Feilberg, Niels Peter Revsbech, Lars Peter Nielsen. Regulation of Ammonia Oxidation in Biotrickling Airfilters with high Ammonium load. 2011, *Chemical Engineering* 167: 198-205

Ottosen LDM, Poulsen HV, Aagreen D, Finster K, Nielsen LPN, Revsbech NP. 2008 Observations on Microbial activity in acidified pig slurry. *Biosystems Engineering* (2009) doi:10.101

Susanne Juhler, Niels Peter Revsbech, Andreas Schramm, Martina Herrmann, Lars DM Ottosen, Lars Peter Nielsen (2009) Distribution and activity of microbial processes in ammonia-loaded air filter biofilm. *Applied Environmental Microbiology* 75(11) 3705-3713

Ottosen LDM, Hindkjær, Ingerslev J (2007) Murine pre-embryo oxygen consumption and developmental competence. *J Assist Reprod Genet.* 24(8):359-65 PMID: 17636441

Ottosen LDM, Hindkjær J, Husth M, Petersen DE, Kirk J, Ingerslev HJ (2006) Observations on intrauterine oxygen tension measured by fibre-optic microsensors. *Reproductive BioMedicine Online* 13 (3) 380-85

Ottosen LDM, Damgaard LR, Ramsing NB, Gundersen JK (2003) Device and method for noninvasive measurement of the individual metabolic rate of a substantially spherical metabolizing particle. Published Patent application WO2004056265

Ottosen LDM, Risgaard-Petersen N, Nielsen LP, Dalsgaard T (2001) Denitrification in exposed intertidal sediments. *Mar Ecol Prog Ser* 209: 35-42.

Ottosen LDM, Risgaard-Petersen N, Nielsen LP (1999) Direct and indirect measurements of nitrification and denitrification in the rhizosphere of aquatic macrophytes. *Aquat Microb Ecol* 19: 81-91

Ottosen LDM, Hindkjær J, Ingerslev J, Kesmodel U (2007) Pregnancy prediction models and simple inclusion criteria for allocating IVF/ICSI patients to eSET, do we have the right information? *J Assist Reprod Genet.* 24(1):29-36 PMID: 17165151

Ottosen LDM, Hindkjær J, Ingerslev J (2007) Light exposure of the ovum and preimplantation embryoduring ART procedures. *J Assist Reprod Genet.* 24(2-3):99-103. PMID: 17216346

Højgaard A, Ottosen LD, Kesmodel U, Ingerslev HJ (2007) Patient attitudes towards twin pregnancies and single embryo transfer - A questionnaire study. *Hum Reprod.* 22(10):2673-8 PMID: 17766921

Ebbesen SMS, R Zachariae, MY Mehlsen, D Thomsen, A Højgaard, L Ottosen, T Petersen, HJ Ingerslev (2009). Stressful life events are associated with a poor IVF-outcome: Results from a prospective quantitative study. *Human Reproduction* 2009. DOI 10.1093/humrep/dep 186

Anne Sørensen, Michael Pedersen, Anna Tietze, Lars DM Ottosen, Liv Duus, Niels Uldbjerg (2008) BOLD MRI: a non invasive measurement of changes in tissue oxygenation in fetal sheep. *Ultrasound in Obstetrics and Gynecology.* 2009
Markfoged R, Nyord T, Revsbech NP, Ottosen LDM, Nielsen LPN 2010. Transient N₂O accumulation and emission caused by O₂ depletion in soil after liquid manure injection. *European Journal of Soil Science.* DOI: 10.1111/j.1365-2389.2011.01369.

Risgaard-Petersen N, Ottosen LDM (2000) Nitrogen cycling in two temperate *Zostera marina* bed: seasonal variation. *Mar Ecol Prog Ser* 198: 93-107

Jetten M, Schmid M, Schmidt I, Ottosen LDM, Wagner M, Kuenen G et al. (2002) Improved Nitrogen removal by application of a new nitrogen-cycle bacteria. *Reviews in Environmental Science and Biotechnology* 1: 51-63.

Brotas V, Risgaard-Petersen N, Seródio J, Ottosen LDM, Dalsgaard T, Ribeiro L (2003). In situ measurement of photosynthetic activity and respiration of intertidal benthic microalgal communities undergoing vertical migration *Ophelia* 57: 13-26

Nielsen TG, Ottosen LDM, Hansen BW (2007) Structure and function of the pelagic ecosystem in Young Sound, NE Greenland. In: Rysgaard S & Glud R.N (eds), *Carbon cycling in Arctic Marine Ecosystems : Case study Young Sound.* Meddr. Grønland, Bioscience 58:88-107.

PUBLICATIONS CURRENTLY IN PREPARATION FOR PEER REVIEW

Markfoged R, Nyord T, Revsbech NP, Ottosen LDM, Nielsen LPN (in Prep) Temporal N₂O events and spatial N₂O distribution in soils with surface applied and injected liquid pig manure as the consequence of the anoxia evolution.

Nielsen M, Ottosen LDM, Damgaard LR and Revsbech NP. (In Prep) A H₂S insensitive H₂ microsensor.

OTHER SCIENTIFIC PUBLICATIONS

- Ingerslev HJ, Poulsen PB, Kesmodel U, Højgaard A, Pindborg A, Henriksen TB, Seeberg J, Ottosen LDM. Should one or two embryos be transferred in IVF? A health technology assessment Danish Health technology assessment 2005; 7(2) Copenhagen: National board of health, Danish Centre for Evaluation and Health Technology Assessment, 2005.
- Ottosen, L.D.M., Fossing, H. & Rysgaard, S. (2000): Mineralization in the Water Column and Sea Ice. In: Caning, K. & Rasch, M. (eds.): Zackenberg Ecological Research Operations, ZERO, 5th Annual Report 1999. Danish Polar Center. pp. 67-68.
- Thamdrup, B., Fossing, H., Hansen, J.W., Ottosen, L.D.M. & Rysgaard, S. (2000): Sedimentation and Mineralization in the Sediment. In: Caning, K. & Rasch, M. (eds.): Zackenberg Ecological Research Operations, ZERO, 5th Annual Report 1999. Danish Polar Center. pp. 68-69.
- Dalsgaard TD (ed.), Nielsen LP, Brotas V, Ottosen LDM et al. (2000): Protocol handbook for NICE- Nitrogen Cycling In Estuaries: a project under the EU research programme: Marine Science and Technology (MAST III). National Environmental Research Institute, Silkeborg, Denmark. 62pp.
- Ottosen LDM (1997) Pricing Nature (In Danish, "Sæt pris på miljøet"). Vand og Jord 1(4): 21-23
- Ottosen LDM (1997) Valuation of Environmental goods (In Danish, "Værdisætning af miljøgoder". Vand og Jord 2(4): 85-87)
- Ottosen LDM (1998) Transplantation of eelgrass (In Danish, "Udplantning af ålegræs, kan det betale sig?") Vand og Jord 1(5): 36-39
- ## BOOKS IN PREPARATION
- Ottosen LDM, Nielsen LP, Juhler S et al. Function of biological airfilters for pig production.
- ## CONFERENCE PRESENTATIONS
- C. Kragelund, K. Litty¹, Ravi Chhetri, Lars Ottosen, C. Sund, H-U. Rasmussen, M. Christensson and H.R. Andersen (2013) Energy-efficient treatment of hospital wastewater. 13th Nordic Wastewater Conference. October 8–10, 2013 in Malmö, Sweden.
- C. Kragelund^{1*}, K. Litty¹, Ravi Chhetri², Lars Ottosen¹, C. Sund³, H-U. Rasmussen⁴, M. Christensson⁵ and H.R. Andersen² Energy-efficient treatment of hospital wastewater. 2013 Congress of The Danish Microbiological Society, November 18th, 2013 in Copenhagen, Denmark
- H. Uellendahl, S.I. Njoku, C. Kragelund, L. Ottosen, B. Ruiz (2013). Boosting the economy of manure based biogas plants. Proceedings of the International Anaerobic Digestion Symposium at BiogasWorld 2013, April 23-25, Berlin. Oral presentation
- H. Uellendahl, L. Ottosen, B. Ruiz, B. Malmgren-Hansen, L. Bailón Allegue, J. Hinge, S.I. Njoku, and C. Kragelund (2013) BIOMAN. 'Economically efficient biogas production from manure fibres and straw'. EU BC&E- 21st European Biomass Conference and Exhibition. 3-7 June, Copenhagen, Denmark. Poster presentation
- C. Kragelund, M.V.W. Kofoed, L. Bjerrum and L.D.M. Ottosen (2012). Configuration consequences in waste water treatment plants on the nitrifying community. Poster presentation at Danish Society of Microbiology (DMS 2012), Copenhagen, November 2012.
- Lars DM Ottosen, Anne-Belinda Bjerre, Jørgen Hinge and Caroline Kragelund (2012). BIOMAN 'Economically efficient biogas production from manure fibres and straw'. Short oral presentation at Danish Society of Microbiology (DMS 2012), Copenhagen, November 2012.
- Kragelund, C., Kofoed, M.V.W., Bjerrum, L., Ottosen, L.D.M., Saunders, A.M. (2012). Comparison of conventional wastewater treatment plant and a MBR plant by nitrification rates, qPCR and pyrosequencing. Oral presentation at the Danish Water Research Platform (DWRP12), Copenhagen, Denmark, January 2012.
- Sorensen; M. Pedersen; A. Tietze; L. Ottosen; L. Duus; N. Ulbjerg (2008) BOLD MRI: a reliable non-invasive method for measuring changes in fetal tissue oxygenation
Top 5 Abstract . 18th World Congress on Ultrasound in Obstetrics and Gynecology Chicago, USA. August 24 -28, 2008
- Lopes A, Ottosen LDM, Greve T, Callesen H (2003) Oxygen indicators of culture conditions and embryo viability. Conference abstract and Poster presentation for International Embryo Transfer Society meeting New Zealand 2004.
- Lopes A, Ottosen LDM, Greve T, Callesen H (2002) Microsensor measurements of oxygen conditions around the in vitro developing cattle embryo: preliminary observations. Conference abstract and Poster presentation for International Embryo Transfer Society meeting New Zealand 2003.
- Poulsen PB, Ingerslev HJ, Kesmodel U, Højgaard, A, Pinborg A, Henriksen TB, Ottosen LD, Seeberg (2006) Cost effectiveness of single embryo transfer (SET) versus double embryo transfer (DET) strategies in in-vitro fertilisation. Poster presentation at the ISPOR 9th Annual European Congress, Copenhagen, Denmark, October 28-31, 2006.
- Ottosen, L., Fossing, H. & Rysgaard, S.: Pelagic N-Mineralization under Arctic Ice Cover. ASLO 2000 Aquatic Sciences Meeting, Research Across Boundaries, Copenhagen, Denmark, June 5-9, 2000.
- Ottosen, L et al. 2007. Oxygen consumption and developmental potential of murine pre implantation embryos. ESHRE conference July 6-9 2007, Lyon, France
- Ottosen LDM. Biofilm formation, characterization, bad guys and good guys. Præsentation på Danske Lægers Sårsmøde årsmøde, Skejby maj 2008.
- Ottosen, LDM. Beyond Kyoto: Microbiology and how to manage GHG emission from live stock waste. Oral presentation. March 2009

Juhler S, Ottosen L, Nielsen LP, Schramm A, Revsbech NP 2008. Controlling factors of nitrite oxidation in ammonia removing biological air filters. Poster ISME Australia 2008.

Nielsen LP, Juhler S, Ottosen LDM 2008. Function of biofilters removing ammonia from pig house ventilation air CIGR - International Conference of Agricultural Engineering

Nødgaard A, Pedersen M, Ottosen LDM, Uldbjerg N, Duus L. A non invasive measurement of changes in tissue oxygenation in fetal sheep. Top 5 Abstract (oral presentation). 18th World Congress on Ultrasound in Obstetrics and Gynecology Chicago, USA. August 24 -28, 2008

Nødgaard A, Pedersen M, Ottosen LDM, Uldbjerg N, Duus L. a non invasive measurement of changes in tissue oxygenation in fetal sheep. Abstract (poster) 8.th World Congress of Perinatal Medicine, Florence, Italy. September 9 - 13, 2007

Ottosen, LDM et al. International Society Microbial Ecology (ISME 2010) Ammonia removal limited by inhibition of metabolism and growth.