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Employments and Education

Visiting Academic. Illinois Sustainable Technology Center, University of Illinois at Urbana-Champaign, USA.
Oct. 2014 → Dec. 2014

Post-Doctoral Research Assistant on project.
Jul. 2013 → Sep. 2013

PhD in Process Engineering, Energy Institute, University of Leeds.
2013

Research at the University of Sidney. The School of Chemical and Biomolecular Engineering, Australia. Research placement through the World University Network.
Apr. 2011 → Jun. 2011

Master of Engineering, Energy and Environmental Engineering; University of Leeds, UK., Classification awarded: First Class Honours.
Sep. 2009

ERASMUS program, Sustainable Energy Engineering, Royal Institute of Technology, Stockholm, Sweden. Two semesters.
Sep. 2007 → Sep. 2008

Undergraduate, Energy and Environmental Engineering Studies, University of Leeds. Part of an integrated 4 year Master of Engineering Degree with exchanges studies in year 3.
Sep. 2005 → Jul. 2007

German Baccalaureate, Friedrich Hecker Gymnasium Radolfzell, Germany. Scientific profile with average mark 2,7.

Publications

Aerobic biological treatment of hydrothermal liquefaction process water of sewage sludge: Nitrification inhibition and removal of hazardous pollutants

Macêdo, W. V., Madsen, J. S., Schacksen, P., Sandeep, R., Nielsen, J. L., Biller, P. & Vergeynst, L., 1 Jun 2025, In: Water Research. 277, 123351.

Hydrothermal liquefaction as a treatment technology for anaerobic digestate: A review

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Enhancing Recycling of Polyamide 6 and Polyethylene Multilayer Plastics through Sequential Hydrothermal Liquefaction

dos Passos, J. S., Skibsted, S. K. G. & Biller, P., Jan 2025, In: Energy and Fuels. 39, 1, p. 571-576 6 p.

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Detection of volatile hydroperfluoroalkanes during hydrothermal liquefaction of perfluoroalkyl carboxylic acids at circumneutral pH

Wen, J., Neha, S., Biller, P., Kristensen, K. & Vergeynst, L., Sept 2024, In: Journal of Hazardous Materials. 476, 8 p., 134955.

Hydrothermal carbonization and pyrolysis in wetland engineering: Carbon sequestration, phosphorus recovery, and structural characterization of willow-based chars with X-ray μ -computed tomography

Acosta, A. C., Arias, C. A., Biller, P., Wittig, N. K., Baragau, I. A., Alhnidi, M. J., Ravenni, G., Sárossy, Z., Benedini, L., Abramiuc, L. E., Popescu, D. G., Negassa, W., Marulanda, V. F., Müller-Stöver, D. S. & Brix, H., Jul 2024, In: Chemical Engineering Journal. 492, 20 p., 151916.

Continuous wet air oxidation of aqueous phase from hydrothermal liquefaction of sewage sludge

Silva Thomsen, L. B., Carregosa, J. D. C., Wisniewski, A., Anastasakis, K. & Biller, P., Jun 2024, In: Journal of Environmental Chemical Engineering. 12, 3, 112672.

Evaluating hydrothermal liquefaction hydrochar from sewage sludge as a phosphorus resource through struvite production

Neha, S., Vergeynst, L. & Biller, P., Jun 2024, In: Journal of Environmental Chemical Engineering. 12, 3, 113014.

Anaerobic digestion of wastewater from hydrothermal liquefaction of sewage sludge and combined wheat straw-manure

Macêdo, W. V., Harpøth, R. D., Poulsen, J. S., de Jonge, N., Fischer, C. H., Agneessens, L. M., Nielsen, J. L., Biller, P., Rickers, C. K. & Vergeynst, L., May 2024, In: Bioresource Technology. 399, 130559.

Hydrochar fractionation and composition in batch and continuous hydrothermal liquefaction

Rivas-Arrieta, M. J., Torri, C., Rombolà, A. G. & Biller, P., Apr 2024, In: Biomass and Bioenergy. 183, 107166.

Sequential hydrothermal dechlorination and liquefaction of PVC

Tito, E., dos Passos, J. S., Rombolà, A. G., Torri, C., Bensaid, S., Pirone, R. & Biller, P., Mar 2024, In: Energy Conversion and Management. 304, 12 p., 118228.

A kinetic process model for sewage sludge hydrothermal liquefaction in Aspen Plus: Model validation with pilot-plant data and scale up

Maqbool, W., Biller, P. & Anastasakis, K., Feb 2024, In: Energy Conversion and Management. 302, 118136.

Optimizing resource efficiency through hydrothermal carbonization and engineered wetland systems: A study on carbon sequestration and phosphorus recovery potential

Acosta, A. C., Arias, C. A., Biller, P., Sørensen, P., Marulanda, V. F. & Brix, H., Feb 2024, In: Journal of Cleaner Production. 442, 140962.

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Zoppi, G., Andrade, T. A., Ward, A. J., Ambye-Jensen, M. & Biller, P., Dec 2023, In: Cleaner and Circular Bioeconomy. 6, 11 p., 100064.

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Macêdo, W. V., Schmidt, J. S., Jensen, S. B., Biller, P. & Vergeynst, L., Dec 2023, In: Journal of Environmental Management. 348, 10 p., 119046.

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Crucial correction of the Faix method for the determination of carbonyls in pyrolysis and hydrothermal liquefaction bio-oils with high nitrogen content

Šiman, M., Krupka, V., Kejla, L., Straka, P., Schulzke, T., dos Passos, J. S., Biller, P. & Auersvald, M., Aug 2023, In: Journal of Analytical and Applied Pyrolysis. 173, 106086.

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Matayeva, A. & Biller, P., Oct 2022, In: Resources, Conservation & Recycling. 185, 9 p., 106502.

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Wet oxidation of aqueous phase from hydrothermal liquefaction of sewage sludge

Thomsen, L. B. S., Anastasakis, K. & Biller, P., 1 Feb 2022, In: Water Research. 209, 10 p., 117863.

Distribution of nutrients and phosphorus recovery in hydrothermal liquefaction of waste streams

Matayeva, A., Rasmussen, S. R. & Biller, P., Jan 2022, In: Biomass and Bioenergy. 156, 8 p., 106323.

Potential use of plant biomass from treatment wetland systems for producing biofuels through a biocrude green-biorefining platform

Rodriguez-Dominguez, M. A., Biller, P., Carvalho, P. N., Brix, H. & Arias, C. A., 5 Dec 2021, In: Energies. 14, 23, 8157.

Hydrothermal liquefaction aqueous phase treatment and hydrogen production using electro-oxidation

Matayeva, A. & Biller, P., Sept 2021, In: Energy Conversion and Management. 244, 114462.

Hydrothermal processing for biomass conversion from wetland-engineered wastewater treatment systems (*willow-salix viminalis*)

Acosta, A. C., Arias, C. A., Biller, P. & Brix, H., Sept 2021, *Book of abstracts 9th international symposium on wetland Pollutant Dynamics and control*. Pucher, B., Germann, V., Canet-Martí, A., Prenner, F., Kearney, K., Weigelhofer, G., Hein, T. & Langergraber, G. (eds.). University of Natural Resources and Life Sciences, Vienna, p. 51-52 2 p.

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Dos Passos, J. S., Chiaberge, S. & Biller, P., Jul 2021, In: Energy and Fuels. 35, 13, p. 10630-10640 11 p.

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Rodriguez-Dominguez, M. A., Bonefeld, B. E., Biller, P., Ambye-Jensen, M., Brix, H. & Arias, C. A., 2021.

Hydrothermal Co-Liquefaction of Synthetic Polymers and *Miscanthus giganteus*: Synergistic and Antagonistic Effects

Souza dos Passos, J., Glasius, M. & Biller, P., 28 Dec 2020, In: ACS Sustainable Chemistry & Engineering. 8, 51, p. 19051-19061 11 p.

The influence of feedstock characteristics on processability of biosolid slurries for conversion to renewable crude oil via hydrothermal liquefaction

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Silva Thomsen, L. B., Carvalho, P. N., Dos Passos, J. S., Anastasakis, K., Bester, K. & Biller, P., Sept 2020, In: Water Research. 183, 116101.

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Revolutionising the way we manage waste: a Danish researcher is developing a pioneering new technology able to e.g. recover all phosphorus from manure and sludge.

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A method for biomass assisted separation of particulate matter from a liquid stream and upgrading of the combined solids
Johannsen, I. (Inventor), Biller, P. (Inventor) & Ottosen, L. D. M. (Inventor), 2020, IPC No. C02F 3/32, Patent No. US2020/0223727, 16 Jul 2020, Priority date 29 Jun 2017, Priority No. PCT/DK2018/050168

Continuous Hydrothermal Liquefaction of Biomass in a Novel Pilot Plant with Heat Recovery and Hydraulic Oscillation

Anastasakis, K., Biller, P., Madsen, R. B., Glasius, M. & Johannsen, I., 10 Oct 2018, In: Energies. 11, 10, 23 p., 2695.

Rapid Determination of Water, Total Acid Number, and Phenolic Content in Bio-Crude from Hydrothermal Liquefaction of Biomass using FT-IR

Madsen, R. B., Anastasakis, K., Biller, P. & Glasius, M., 19 Jul 2018, In: Energy & Fuels. 32, 7, p. 7660-7669 10 p.

Detailed Investigation into the Asphaltene Fraction of Hydrothermal Liquefaction Derived Bio-Crude and Hydrotreated Bio-Crudes

Bjelić, S., Yu, J., Iversen, B. B., Glasius, M. & Biller, P., 15 Mar 2018, In: Energy & Fuels. 32, 3, p. 3579-3587 9 p.

Primary sewage sludge filtration using biomass filter aids and subsequent hydrothermal co-liquefaction

Biller, P., Johannsen, I., Souza dos Passos, J. & Ottosen, L. D. M., 1 Mar 2018, In: Water Research. 130, p. 58-68 11 p.

Assessment of agricultural crops and natural vegetation in Scotland for energy production by anaerobic digestion and hydrothermal liquefaction

Biller, P., Lawson, D., Madsen, R. B., Becker, J., Iversen, B. B. & Glasius, M., 6 Dec 2017, In: Biomass Conversion and Biorefinery. 7, 4, p. 467-477 11 p.

Nanoparticles of Pd supported on bacterial biomass for hydroprocessing crude bio-oil

Kunwar, B., Deilami, S. D., Macaskie, L. E., Wood, J., Biller, P. & Sharma, B. K., 1 Dec 2017, In: Fuel. 209, p. 449-456 8 p.

Hydrothermal liquefaction: A promising pathway towards renewable jet fuel

Biller, P. & Roth, A., 9 Aug 2017, *Bioerosene: Status and Prospects*. Kaltschmitt, M. & Neuling, U. (eds.). Springer, p. 607-635 29 p.

Characterizing Semivolatile Organic Compounds of Biocrude from Hydrothermal Liquefaction of Biomass

Madsen, R. B., Zhang, H., Biller, P., Goldstein, A. H. & Glasius, M., 20 Apr 2017, In: Energy & Fuels. 31, 4, p. 4122-4134 13 p.

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The seasonal variation of fucoidan within three species of brown macroalgae

Fletcher, H. R., Biller, P., Ross, A. B. & Adams, J. M. M., 1 Mar 2017, In: Algal Research. 22, p. 79-86 8 p.

Catalytic hydrotreatment of bio-crude produced from hydrothermal liquefaction of aspen wood: A catalyst screening and parameter optimization study

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Predicting the Chemical Composition of Aqueous Phase from Hydrothermal Liquefaction of Model Compounds and Biomasses

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Principal component analysis of bio-crude and aqueous phase from hydrothermal liquefaction of thermally and chemically pretreated *Miscanthus x giganteus*

Madsen, R. B., Lappa, E., Biller, P., Jensen, M. M., Becker, J., Christensen, P. R., Iversen, B. B. & Glasius, M., 31 May 2016.

Hydrogen production from the catalytic supercritical water gasification of process water generated from hydrothermal liquefaction of microalgae

Cherad, R., Onwudili, J. A., Biller, P., Williams, P. T. & Ross, A. B., 15 Feb 2016, In: Fuel. 166, February, p. 24-28 5 p.

Production of biofuels via hydrothermal conversion

Biller, P. & Ross, A., 1 Jan 2016, *Handbook of Biofuels Production: Processes and Technologies: Second Edition*. Luque, R., Lin, C., Wilson, K. & Clark, J. (eds.). 2 ed. Woodhead Publishing, p. 509-547 39 p.

Effect of hydrothermal liquefaction aqueous phase recycling on bio-crude yields and composition

Biller, P., Madsen, R. B., Klemmer, M., Becker, J., Iversen, B. B. & Glasius, M., 2016, In: Bioresource Technology. 220, p. 190-199 10 p.

Investigation of the presence of an aliphatic biopolymer in cyanobacteria: Implications for kerogen formation

Biller, P., Ross, A. B. & Skill, S. C., 1 Apr 2015, In: Organic Geochemistry. 81, p. 64-69 6 p.