

## Journal publications

1. Alrahman, C. A., Khodabakhsh, A., Schmidt, F. M., Qu, Z., Foltynowicz, A. "Cavity-enhanced optical frequency comb spectroscopy of high-temperature H<sub>2</sub>O in a flame", *Opt. Express* 22 (2014) 13889-95.
2. Carlsson, P., Ma, C., Molinder, R., Weiland, F., Wiinikka, H., Öhman, M., Öhrman, O.G.W. "Slag formation during oxygen-blown entrained-flow gasification of stem wood" *Energy and Fuels* 28 (2014) 6941-6952.
3. Göransson, K., Söderlind U., Engstrand P., Zhang W. "An experimental study on catalytic bed materials in a dual fluidized bed gasifier" *Renewable Energy* (2014).
4. Göransson, K., Söderlind U., Henschel T., Engstrand P., Zhang W. "Internal tar/CH<sub>4</sub> reforming in a biomass dual fluidized bed gasifier", *Energy and Fuels* (2014)
5. Israelsson M., Seemann M., Thunman H. "Assessment of the Solid-Phase Adsorption Method for Sampling Biomass-Derived Tar in Industrial Environments". *Energy & Fuels* 27(12), pp 7569-7578.
6. Israelsson, M., Larsson, A., Thunman, H. "Online Measurement of Elemental Yields, Oxygen Transport, Condensable Compounds, and Heating Values in Gasification Systems" *Energy and Fuels* 28(9), pp 5892-5901
7. Keller M., Leion H., Mattisson T., Thunman H. "Investigation of natural and synthetic bed materials for their utilization in Chemical-Looping Reforming for tar elimination in biomass-derived gasification gas" *Energy and Fuels* 28(6), pp 3833-3840.
8. Kramb, J., Konttinen, J., Gómez-Barea, A., Moilanen, A., Umeki, K. "Modeling biomass char gasification kinetics for improving prediction of carbon conversion in a fluidized bed gasifier" *Fuel* 132 (2014) 107-115.
9. Larsson, A., Israelsson, M., Lind, F., Seemann, M., Thunman, H. "Using Ilmenite to Reduce Tar Yields in a Dual Fluidized Bed Gasification System". *Energy and Fuels* 28(4), pp 2632-2644
10. Larsson, A., Ström, H., Sasic, S, Thunman H. "Experimental and Numerical Investigation of the Dynamics of a Loop-Seal Operating Under Hot Conditions in a Large-Scale Dual Fluidized Bed System". *AIChE*, December 2014.
11. Landälv, I., Gebart, R., Marke, B., Granberg, F., Furusjö, E., Löwnertz, P., Öhrman, O., Sørensen, E. L., Salomonsson, P. "Two years' experience of the BioDME project: A complete wood to wheel concept" *Environmental Progress & Sustainable Energy* 33 (2014) 744-750 7.

12. Lin, L., Strand, M. "Online investigation of steam gasification kinetics of biomass chars up to high temperatures". *Energy & Fuels*. 28. 607-613.
13. Marinkovic J., Berguerand N., Lind F., Seemann M., Thunman H. "Using a manganese ore as catalyst for upgrading biomass derived gas". *Biomass Conversion and Biorefinery*, February 2014.
14. Molinder, R., Wiinikka, H. "Feeding small biomass particles at low rates", *Powder Technology* 269 (2015) 240-246.
15. Molinder, R., Öhrman, O.G.W "Characterization and cleanup of wastewater from pressurized entrained flow biomass gasification" *ACS Sustainable Chemistry and Engineering* 2 (2014) 2063-2069.
16. Nemanova, V., Engvall, K. "Tar Variability in the Producer Gas in a Bubbling Fluidized Bed Gasification System" *Energy&Fuels* 28, pp 7494-7500
17. Neves, D., Thunman H., Tarelho L., Larsson A., Seemann M., Matosa A. "Method for online measurement of the CHON composition of raw gas from biomass gasifier". *Applied Energy*, 113 pp 932-945.
18. Risberg, M., Öhrman, O. G. W., Gebart, B. R., Nilsson, P. T., Gudmundsson, A., Sanati, M. "Influence from fuel type on the performance of an air-blown cyclone gasifier" *Fuel* 116 (2014) 751-759.
19. Sette, E., Pallarès, D., Johnsson, F. "Experimental Evaluation of Lateral Mixing of Bulk Solids in a Fluid-Dynamically Down-Scaled Bubbling Fluidized Bed". *Powder Technology* 263, pp 74-80
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21. Tchoffor, P.A., Davidsson, K.O., Thunman, H. "Effects of Steam on the Release of Potassium, Chlorine, and Sulfur during Char Conversion, Investigated under Dual Fluidized Bed Gasification Conditions". *Energy & Fuels* 28 (11), pp 6953-6965
22. Weiland, F., Nilsson, P.T., Wiinikka, H., Gebart, R., Gudmundsson, A., Sanati, M. "Online characterization of syngas particles using aerosol mass spectrometry in entrained-flow biomass gasification" *Aerosol Science and Technology* 48 (2014) 1145-1155.
23. Weiland, F., Nordwaeger, M., Olofsson, I., Wiinikka, H., Nordin, A. "Entrained flow gasification of torrefied wood residues" *Fuel Processing Technology* 125 (2014) 51-58.

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26. Öhrman, O.G.W., Molinder, R., Weiland, F., Johansson, A.C. "Analysis of trace compounds generated by pressurized oxygen blown entrained flow biomass gasification" *Environmental Progress and Sustainable Energy* 33 (2014) 699-705

## Conference articles

1. Alrahman, C. A., Khodabakhsh, A., Schmidt, F. M., Qu, Z., Foltynowicz, A. "Cavity-enhanced optical frequency comb spectroscopy of high-temperature H<sub>2</sub>O in a flame" *Field Laser Applications in Industry and Research*, May 2014.
2. Avelin, A., Skvaril, J., Aulin, R., Odlare, M., Dahlquist, E. "Forest biomass for bioenergy production – comparison of different forest species" *6<sup>th</sup> International Conference on Applied Energy – ICAE2014*, May 2014
3. Bach, A., Furusjö, E., Umeki, K. "Fuel conversion characteristics of black liquor and pyrolysis oil mixture for efficient gasification with inherent catalyst" *22<sup>nd</sup> European Biomass Conference and Exhibition*, June 2014.
4. Carlborg, M., Boström, D., Backman, R., Öhman, M. "Wood-ash interaction with mullite based lining in entrained flow gasification" *Impacts of Fuel Quality on Power Production*, October 2014.
5. Donaj, P., Amovic, M., Baldesca, M., Alzuheri, R., Folkelid, M.N., Ljunggren, R. Engvall, K. "Flexibility and robustness of WoodRoll system – tests results from a 500kW plant", *1<sup>st</sup> International Conference on Renewable Energy Gas Technology*, May 2014
6. González, A.V., Engvall, K. "The effect of gas-phase alkali on Ni-Based catalysts for biomass tar reforming" *23<sup>rd</sup> Canadian Symposium on Catalysis*, May 2014
7. Granberg, F., Gebart, R., Marke, B., Lindberg, G. "BioDME Project – Development of a regenerative active carbon filter system for synthesis gas from biomass" *Symposium on Thermal and Catalytic Sciences for Biofuels and Biobased Products*, September 2014.
8. Göktepe, B., Umeki, K., Gebart, R. "Soot formation from biomass in an idealized entrained flow gasifier atmosphere" *4th International Symposium on Gasification and its Applications*, September 2014.
9. Hadi Jafari, P., Risberg, M., Gebart, R. "On the influence from turbulence modeling on particle suspension flow in cyclone gasifiers" *Symposium on Thermal and Catalytic Sciences for Biofuels and Biobased Products*, September 2014.

10. Haghghi Moud, P., Andersson, K., Engvall, K. "Effect of gas phase alkali on tar reforming catalyst" *6<sup>th</sup> International Freiberg Conference on IGCC & XtL Conference*, May 2014
11. Holmgren, P., Umeki, K., Strandberg, A., Wagner, D.R., Molinder, R., Wiinikka, H., Broström, M. "Size, Shape and Density Changes of Biomass Particles during Devolatilization in a Drop Tube Furnace" *Impacts of Fuel Quality on Power Production*, October 2014.
12. Kajsa, W., Piotrowska, P., Gentili, F., Holmlund, M., Boman, C., Broström, M. "Characterization of Thermochemical Fuel Properties of Microalgae and Cyanobacteria" *Impacts of Fuel Quality on Power Production*, October 2014.
13. Keller M, Leion H, Mattisson T. "Use of CuO-MgAl<sub>2</sub>O<sub>4</sub> as a Bed Material in a Chemical Looping Reforming System for Tar Removal from Biomass-derived Gasification Gas" *3<sup>rd</sup> International Conference on Chemical Looping* September 2014
14. Knutsson, P., Schwebel, G., Steenari, B.M., Leion, H. "Effect of bed material mixing on the observed bed sintering", *11<sup>th</sup> International Conference on Circulating Fluidized Beds*, May 2014
15. Liliedahl, T., Engvall, K., Rosén, C. "Pressurised bubbling fluidised bed gasification of biomass and subsequent catalytic reformation of the product gas", *22<sup>nd</sup> European Biomass Conference and Exhibition*, June 2014
16. Lundberg, L., Pallarès, D., Johansson, R., Thunman, H. "A 1-dimensional model of indirect biomass gasification in a dual fluidised bed system". *11<sup>th</sup> International Conference on Circulating Fluidized Beds*. May 2014
17. Ma, C., Carlborg, M., Backman, R., Öhman, M. "Slag formation during pressurized entrained-flow gasification of woody biomass – a thermochemical study" *Impacts of Fuel Quality on Power Production*, October 2014
18. Mirmoshtaghi, G. "The effect of including hydrodynamics for modeling atmospheric bubbling fluidized bed gasifiers" *4<sup>th</sup> International Symposium on Gasification and its Applications*, September 2014
19. Nguyen H. "Ilmenite as catalyst for raw gas tar reforming - Study on the reactions and mechanisms involved". *4<sup>th</sup> International Symposium on Gasification and its Applications*, September 2014
20. Olsson, J., Larsson, J., Sette, E., Pallarès, D., Sasic, S., Johnsson, F. "Experimental evaluation of lateral fuel mixing in a fluidized bed with cross- flow of solids – influence of tube banks". *11<sup>th</sup> International Conference on Circulating Fluidized Beds*. May 2014
21. Sette, E., Pallarès, D., Johnsson, F. "The influence of operating conditions and fuel-feed location on fuel residence time in an indirect gasifier". *11<sup>th</sup> International Conference on Circulating Fluidized Beds*, May 2014

22. Strandberg, A., Wagner, D.R., Holmgren, P., Molinder, R., Wiinikka, H., Umeki, K., Broström, M. "Influence of Biomass Particle Properties and Pyrolysis Conditions on Intrinsic Char Reactivity" *Impacts of Fuel Quality on Power Production*, October 2014
23. Qu, Z., Schmidt, F. M. "Calibration-free wavelength modulation spectroscopy applications from combustion to medical science" *Optical Society of America: Light, Energy and the Environment Congress*, December 2014
24. Qu, Z., Fagerström, J., Steinvall, E., Broström, M., Boman, C., Schmidt, F. M. "Real-time in-situ detection of potassium release during combustion of pelletized biomass using tunable diode laser absorption spectroscopy" *Impacts of Fuel Quality on Power Production*, October 2014
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27. Qu, Z., Schmidt, F. M. "Low-cost TDLAS sensor for real-time in-situ temperature and H<sub>2</sub>O measurements in biomass combustion applications" *Field Laser Applications in Industry and Research*, May 2014
28. Risberg, M., Hadi-Jafari, P., Gebart, R. "Design Optimization by Numerical Modeling of an Air-Blown Cyclone Gasifier" *4th International Symposium on Gasification and its Applications*, September 2014
29. Simonsson, J., Olofsson, N.-E., Török, S., Bladh, H., Bengtsson, P.-E. "Studies of optical and physical properties of soot in premixed flat flames using laser-induced incandescence, elastic light scattering and extinction" *Sixth international meeting and workshop on laser-induced incandescence*, June 2014
30. Wagner, D. R., Qu, Z., Broström, M., Schmidt, F.M. "Validation of reacting flow models via tunable diode laser absorption spectroscopy" *Impacts of Fuel Quality on Power Production*, October 2014
31. Wagner, D.R., Broström, M. "The effect of particle size, temperature, and residence time on biomass devolatilization behavior in a wire-mesh reactor" *Impacts of Fuel Quality on Power Production*, October 2014
32. Wagner, D.R., Holmgren, P., Strandberg, A., Molinder, R., Wiinikka, H., Broström, M. "Fate of Inorganic Species during Biomass Devolatilization in a Drop Tube Furnace" *Impacts of Fuel Quality on Power Production*, October 2014.