

Journal publications

1. M. Morgalla, L. Lin, M. Strand, *Decomposition of benzene using char aerosol particles dispersed in a high-temperature filter*, Energy, Volume 118, Pages 1345-1352
2. K. Kirtania, J. Axelsson, L. Matsakas, P. Christakopoulos, K. Umeki, E. Furusjö, *Kinetic study of catalytic gasification of wood char impregnated with different alkali salts*, Energy, Volume 118, Pages 1055-1065
3. B. Göktepe, K. Umeki, A. Hazim, T. S Lundström, R. Gebart. *Soot reduction in an entrained flow gasifier of biomass by active dispersion of fuel particles*, Fuel, Volume 201, Pages 111-117
4. K. Kirtania, G. Häggström, M. Broström, K. Umeki, E. Furusjö, *Co-gasification of Crude Glycerol and Black Liquor Blends: Char Morphology and Gasification Kinetics*, Energy Technology, Volume 5, Issue 8, August 2017, Pages 1272-1281
5. Strandberg, A., Holmgren, P., Wagner, D.R., Molinder, R., Wiinikka, H., Umeki, K., Broström, M. *Effects of pyrolysis conditions and ash formation on gasification rates of biomass char*, Energy & Fuels 31 (2017) 6507-6514.
6. Holmgren, P., Wagner, D.R., Strandberg, A., Molinder, R., Wiinikka, H., Umeki, K., Broström, M. *Size, shape and density changes of biomass powder particles during rapid devolatilization*, Fuel 206 (2017) 342-351
7. Umeki, K., Häggström, G., Bach-Oller, A., Kirtania, K., Furusjö, E. *Reduction of tar and soot formation from entrained flow gasification of woody biomass by alkali impregnation*, Energy & Fuels 31 (2017) 5104-5110.
8. Bach-Oller, A., Kirtania, K., Furusjö, E., Umeki, K. *Co-gasification of black liquor and pyrolysis oil at high temperature: Part 2. Fuel conversion*, Fuel 197 (2017) 240-247
9. Bach-Oller, A., Kirtania, K., Furusjö, E., Umeki, K. *Co-gasification of black liquor and pyrolysis oil at high temperature: Part 1. Fate of alkali elements*, Fuel 202 (2017) 46-55.
10. Lundberg, L., Johansson, R., Pallarès, D., Thunman, H. *A conversion-class model for describing fuel conversion in large-scale fluidized bed units*. Fuel, Volume 197, Pages 42-50
11. Köhler, A., Rasch, A., Pallarès, D., Johansson, F. *Experimental characterization of axial fuel mixing in fluidized beds by magnetic particle tracking*. Powder Technology, Volume 316, Pages 492-499

12. Lundberg, L., Soria-Verdugo, A., Pallarès, D., Johansson, R., Thunman, H. *The role of fuel mixing on char conversion in a fluidized bed*. Powder Technology, Volume 316, Pages 677-686
13. Nicolas Berguerand, Teresa Berdugo Vilches , *Alkali-Feldspar as a Catalyst for Biomass Gasification in a 2-MW Indirect Gasifier*, Energy & Fuels, 31, 2, Pages 1583-1592
14. Khanh-Quang Tran, Aksel Junge Klemsdala, Wennan Zhang, Judit Sandquist. *Fast hydrothermal liquefaction of native and torrefied wood*. Energy Procedia 2016, Volume 105, Pages 218-223
15. Andersson, J., Umeki, K., Furusjö, E., Kirtania, K., Weiland, F. *Multi-scale reactor network simulation of an entrained flow biomass gasifier – model description and validation*, Energy Technology 2017, Volume 5, 8, Pages 1484-1494
16. J. Simonsson, N.-E. Olofsson, H. Bladh, M. Sanati, P.-E. Bengtsson, *Influence of potassium and iron chloride on the early stages of soot formation using imaging LII/ELS and TEM techniques*, PCI 36 (1) 853-860 (2017).
17. Ögren Y, Sepman A, Qu Z, Schmidt F M and Wiinikka H. *Comparison of Measurement Techniques for Temperature and Soot Concentration in Premixed, Small-Scale Burner Flames*, Energy & Fuels 31, pp 11328-36
18. Sepman A, Ögren Y, Qu Z, Wiinikka H and Schmidt F M. *Real-time in situ multi-parameter TDLAS sensing in the reactor core of an entrained-flow biomass gasifier*, Proc. Combust. Inst. 36, pp 4541-4548
19. Sepman, A., Ögren, Y., and Wiinikka, H., *Optical techniques for characterizing the biomass particle flow fluctuations in lab- and pilot-scale thermochemical systems*, Powder Technology, 313 (2017) 129-134
20. Wiinikka, H., Wennebro, J., Gullberg, M., Pettersson, E., and Weiland, F., *Pure oxygen fixed-bed gasification of wood under high temperature (>1000°C) freeboard conditions*, Applied Energy, 191 (2017) 153-162.
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22. Jafari, P. ,Hellström, G. and Gebart, R. *Turbulence Modelling of a Single-Phase Flow Cyclone Gasifier*. Engineering, 9, pp. 779-799
23. M. Ghadami Yazdi, PH. Moud, K. Marks, W. Piskorz , H. Öström, T. Hansson, A. Kotarba, K. Engvall, M. Göthelid. *Naphthalene on Ni(111): Experimental and Theoretical Insights into Adsorption, Dehydrogenation, and Carbon Passivation*. Journal of Physical Chemistry C 2017, 121 (40), 22199–22207

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27. D. Gall, M. Pushp, K. Davidsson, J.B.C Pettersson. *Online Measurements of Alkali and Heavy Tar Components in Biomass Gasification*, Energy Fuels 31, 8, 8152-8161
28. D. Bäckström, A. Gunnarsson, D. Gall, X. Pei, R. Johansson, K. Andersson, RK. Pathak, J. B.C. Pettersson. *Measurement of the size distribution, volume fraction and optical properties of soot in an 80 kW propane flame*, Combustion and Flame, Volume 186, Pages 325-334
29. A. Strandberg, P. Holmberg, M. Broström. *Predicting fuel properties of biomass using thermogravimetry and multivariate data analysis*, Fuel Processing Technology, Volume 156, Pages 107-112
30. M. Mäkelä, CW Kwong, M.Broström, K. Yoshikawa. *Hydrothermal treatment of grape marc for solid fuel applications*, Energy Conversion and Management, Volume 145, Pages 371-377
31. K. Qin, H. Thunman, B. Leckner. *Mass transfer under segregation conditions in fluidized beds*, Fuel, Volume 195, Pages 105-112
32. T.Berdugo Vilches, F. Lind, M. Rydén, H. Thunman. *Experience of more than 1000 h of operation with oxygen carriers and solid biomass at large scale*, Applied Energy, Volume 190, Pages 1174-1183
33. A. Köhler, D. Pallares, F. Johnsson. *Magnetic tracking of a fuel particle in a fluid-dynamically down-scaled fluidised bed*, Fuel Processing Technology, Volume 162, Pages 147-156
34. A. Alamia, S. Òsk Gardarsdóttir, A. Larsson, F. Normann, H. Thunman. *Efficiency Comparison of Large-Scale Standalone, Centralized, and Distributed Thermochemical Biorefineries*, Energy Technol. 2017, 5, 1435
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39. J. Hu, J. Shao, H. Yang, G. Lin, Y. Chen, X. Wang, W. Zhang, H. Chen. *Co-gasification of coal and biomass: synergy, characterization and reactivity of the residual char*, Bioresource Technology, Volume 244, Pages 1-7
40. IN. Zaini, W. Yang, PG. Jönsson. *Steam gasification of solid recovered fuel char derived from landfill waste: A kinetic study*, Energy Procedia, Volume 142, Pages 723-729

Conference articles

1. Bengtsson P-E. *Optical Properties of Soot Particles related to Maturity: In-Situ and Postflame Measurement*, 28th International SAOT Workshop on Optical Particle Characterization 2017, Erlangen, Germany
2. Ögren Y et.al. *Development of a camera based system for detection equivalence ratio in flames relevant for entrained flow gasification*, Nordic Flame Days 2017, 10-11 October, Stockholm, Sweden.
3. Holmgren P et.al. *Slag formation during entrained flow gasification. Part 1: Calcium rich bark fuel*. In. Nordic Flame Days, Stockholm, 10-11 October 2017. Stockholm.
4. Holmgren P et.al. *Slag formation during entrained flow gasification. Part 2: Silicon rich grass fuel with HKCO₃ additive*. In. Nordic Flame Days, Stockholm, 10-11 October 2017. Stockholm.
5. Strandberg A et al. *Char conversion characterized by synchrotron based X-ray micro-tomography and SEM-EDS analysis*. Proceedings of the 25th European Biomass Conference and Exhibition
6. K.M. Marks, et.al *Adsorption and dehydrogenation of naphthalene on nickel(111)* , 33rd European Conference on Surface Science, 27/08-01/09 2017 Szeged, Hungary
7. D.Gall et.al. *A Novel Field Reversal - Surface Ionization Detector for Characterization of Biomass Burning and Sea Salt Aerosols*, European Aerosol Conference

8. A. Trubetskaya, et.al. *Effects of Lignocellulosic Compounds on the Yield, Nanostructure and Reactivity of Soot from Fast Pyrolysis at High Temperatures*, Nordic Flame Days 2017
9. AD. Garcia et.al. *Evolution of Soot Size and Yield from Biomass under N₂ and N₂/CO₂ Flow*, 10th Mediterranean Combustion Symposium
10. E. Furusjö et.al, *Alkali enhanced entrained flow gasification of woody biomass*, Tcbiomass2017
11. A. Bach-Oller et.al, *Alkali Compounds as Tar and Soot Suppressors in Entrained Flow Gasification*, 25th European Biomass Conference & Exhibition
12. A. Strandberg et.al, *Char conversion characterized by synchrotron based X-ray microtomography and SEM-EDS analysis*, 25th European Biomass Conference & Exhibition
13. A. Leppänen et.al, *Condensation and deposit formation in the NaCl-Na₂SO₄ system, an experimental and modeling study*, International Chemical Recovery Conference (ICRC), Halifax, Canada, 2017
14. A. Trubetskaya, et.al. *Development of CO₂ neutral reductants in metallurgical industry from thermochemically produced biochar using DFT calculations*, ECI Meeting, Alba, Italy
15. Z. Qu et.al, *Investigation of H₂O, temperature and potassium in entrained flow biomass combustion – coupling in situ TDLAS with modelling*, Nordic Flame Days 2017
16. J. Simonsson et.al, *Influence of metal salts on soot formation through measurements of soot volume fractions and particle sizes using imaging LII, ELS, and TEM techniques*, Gordon Research Conference, Mount Snow, USA
17. H. Thunman et.al, *Performance of the 32 MW GoBiGas gasifier and implications for larger units*, Gasification Summit, Helsinki
18. A. Köhler et.al, *Modelling axial mixing of char - application to the dense bottom bed in CFB boilers*, 12th International Conference of Fluidized bed Technology
19. H. Thunman et.al, *Advanced intrinsic syngas cleaning and increased bioSNG efficiency*, 4th International Conference on Renewable Energy Gas Technology
20. J. Ahlström et.al, *Bark as a fuel for dual bed gasification-fuel conversion and efficiency*, 4th International Conference on Renewable Energy Gas Technology
21. M. Seemann et.al, *GoBiGas-First Full-Scale Demonstration of Biomethane from Forest Residues*, 25th European Biomass Conference & Exhibition

22. S. Pissot et.al, *Recirculation of reactive fines- an optimization strategy for existing fluidized bed gasification systems*, 25th European Biomass Conference & Exhibition
23. H. Thunman et.al, *Experiences from Biomass Gasification for Advanced Biofuel Production in Industrial Scale*, The Clearwater Clean Energy Conference 2017
24. F. Lind et.al, *Selective Oxidation Processes for Ultra-Efficient Fuel and Waste Conversion, Materials Recycling, Gas Synthesis and Processing*, The Clearwater Clean Energy Conference 2017
25. *Secondary Material Loops for Efficient Biomass Gasification*, Tcbiomass2017
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