

Journal publications

1. Chunguang Zhou, Christer Rosén, Klas Engvall, *Biomass oxygen/steam gasification in a pressurized bubbling fluidized bed: Agglomeration behavior*, Applied Energy, Volume 172, Pages 230-250
2. Pouya H. Moud, Klas J. Andersson, Roberto Lanza, Klas Engvall, *Equilibrium potassium coverage and its effect on a Ni tar reforming catalyst in alkali- and sulfur-laden biomass gasification gases*, Applied Catalysis B: Environmental, Volume 190, 5 Pages 137-146
3. Zahra S. Musavi, Lars J. Pettersson, Klas Engvall, *Modelling, Design and Operation of a Burner for Partial Combustion of Biomass Product Gas*, Industrial & Engineering Chemistry Research Volume 55 (36), Pages 9687-9697
4. Chunguang Zhou, Christer Rosén, Klas Engvall, *Selection of dolomite bed material for pressurized biomass gasification in BFB*, Fuel Processing Technology, Volume 159, Pages 460-473
5. Lina N. Samuelsson, Matthaus U. Babler, Elisabet Brännvall, Rosana Moriana, *Pyrolysis of kraft pulp and black liquor precipitates derived from spruce: Thermal and kinetic analysis*, Fuel Processing Technology, Volume 149, Pages 275-284
6. Ramiar Sadegh-Vaziri, Matthaus U. Babler, *Numerical investigation of the outward growth of ZnS in the removal of H₂S in a packed bed of ZnO*, Chemical Engineering Science, Volume 158, 2, Pages 328-339
7. Ammar Hazim Saber, Burak Göktepe, Kentaro Umeki, T. Staffan Lundström, Rikard Gebart, *Active fuel particles dispersion by synthetic jet in an entrained flow gasifier of biomass: Cold flow*, Powder Technology, Volume 302, Pages 275-282
8. Anna Trubetskaya, Peter Arendt Jensen, Anker Degn Jensen, Angel David Garcia Llamas, Kentaro Umeki, Diego Gardini, Jens Kling, Richard B. Bates, Peter Glarborg, *Effects of several types of biomass fuels on the yield, nanostructure and reactivity of soot from fast pyrolysis at high temperatures*, Applied Energy, Volume 171, Pages 468-482
9. Anna Trubetskaya, Peter Arendt Jensen, Anker Degn Jensen, Angel David Garcia Llamas, Kentaro Umeki, Peter Glarborg, *Effect of fast pyrolysis conditions on biomass solid residues at high temperatures*, Fuel Processing Technology, Volume 143, Pages 118-129
10. Burak Göktepe, Kentaro Umeki, Rikard Gebart, *Does distance among biomass particles affect soot formation in an entrained flow gasification process?*, Fuel Processing Technology, Volume 141, Part 1, Pages 99-105

11. Charlie Ma, Markus Carlborg, Henry Hedman, Jonas Wennebro, Fredrik Weiland, Henrik Wiinikka, Rainer Backman, Marcus Öhman, *Ash Formation in Pilot-Scale Pressurized Entrained-Flow Gasification of Bark and a Bark/Peat Mixture*, *Energy & Fuels*, Volume 30 (12), Pages 10543-10554
12. Alexey Sepman, Yngve Ögren, Marcus Gullberg, Henrik Wiinikka, *Development of TDLAS sensor for diagnostics of CO, H₂O and soot concentration in reactor core of pilot-scale gasifier*, *Applied Physics B: Lasers and Optics*, Volume 122, Pages 29-40
13. Fredrik Weiland, Daniel J. Sweeney, Henrik Wiinikka, *Extractive Sampling of Gas and Particulates from the Reactor Core of an Entrained Flow Biomass Gasifier*, *Energy & Fuels* 2016 30 (8), Pages 6405-6412
14. David R. Wagner, Markus Broström, *Time-dependent variations of activation energy during rapid devolatilization of biomass*, *Journal of Analytical and Applied Pyrolysis*, Volume 118, Pages 98-104
15. Youjian Zhu, Patrycja Piotrowska, Philip J. van Eyk, Dan Boström, Xuehong Wu, Christoffer Boman, Markus Broström, Jun Zhang, Chi Wai Kwong, Dingbiao Wang, Andrew J. Cole, Rocky de Nys, Francesco G. Gentili, Peter J. Ashman, *Fluidized Bed Co-gasification of Algae and Wood Pellets: Gas Yields and Bed Agglomeration Analysis*, *Energy & Fuels* 2016 30 (3), Pages 1800-1809
16. Anna Strandberg, Per Holmgren, Markus Broström, *Predicting fuel properties of biomass using thermogravimetry and multivariate data analysis*, *Fuel Processing Technology*, Volume 156, Pages 107-112
17. Farzad Moradian, Placid A. Tchoffor, Kent O. Davidsson, Anita Pettersson, Rainer Backman, *Thermodynamic equilibrium prediction of bed agglomeration tendency in dual fluidized-bed gasification of forest residues*, *Fuel Processing Technology*, Volume 154, Pages 82-90
18. Jason Kramb, Jukka Konttinen, Rainer Backman, Kari Salo, Michael Roberts, *Elimination of arsenic-containing emissions from gasification of chromated copper arsenate wood*, *Fuel*, Volume 181, Pages 319-324
19. Johan Simonsson, Henrik Bladh, Marcus Gullberg, Esbjörn Pettersson, Alexey Sepman, Yngve Ögren, Henrik Wiinikka, Per-Erik Bengtsson, *Soot Concentrations in an Atmospheric Entrained Flow Gasifier with Variations in Fuel and Burner Configuration Studied Using Diode-Laser Extinction Measurement*, *Energy and Fuels* 30 (3), Pages 2174-2186

20. Teresa Berdugo Vilches, Jelena Marinkovic, Martin Seemann, Henrik Thunman, *Comparing Active Bed Materials in a Dual Fluidized Bed Biomass Gasifier - Olivine, Bauxite, Quartz-Sand and Ilmenite*, Energy Fuels, 2016, 30 (6), Pages 4848–4857
21. Huong N. T. Nguyen, Nicolas Berguerand, Henrik Thunman, *Mechanism and Kinetic Modeling of Catalytic Upgrading of a Biomass-Derived Raw Gas. An Application with Ilmenite as Catalyst*, Industrial & Engineering Chemistry Research 2016 55 (20), Pages 5843-5853
22. Mikael Israelsson, Henrik Thunman, *Gasification reaction pathways of condensable hydrocarbons*, Energy Fuels, 2016, 30 (6), Pages 4951–4959
23. Pedro Haro, Filip Johnsson, Henrik Thunman, *Improved syngas processing for enhanced Bio-SNG production: A techno-economic assessment*, Energy, Volume 101, Pages 380-389
24. Alberto Alamia, Henrik Thunman, Martin Seemann, *Process simulation of dual fluidized bed gasifiers using experimental data*, Energy Fuels, 2016, 30 (5), Pages 4017–4033
25. Louise Lundberg, Placid A. Tchoffor, David Pallarès, Robert Johansson, Henrik Thunman, Kent Davidsson, *Influence of surrounding conditions and fuel size on the gasification rate of biomass char in a fluidized bed*, Fuel Processing Technology, Volume 144, Pages 323-333
26. Alberto Alamia, Ingemar Magnusson, Filip Johnsson, Henrik Thunman, *Well-to-wheel analysis of bio-methane via gasification, in heavy duty engines within the transport sector of the European Union*, Applied Energy, Volume 170, Pages 445-454
27. Nicolas Berguerand, Jelena Marinkovic, Teresa Berdugo Vilches, Henrik Thunman, *Use of alkali-feldspar as bed material for upgrading a biomass-derived producer gas from a gasifier*, Chemical Engineering Journal, Volume 295, Pages 80-91
28. Erik Sette, Teresa Berdugo Vilches, David Pallarès, Filip Johnsson, *Measuring fuel mixing under industrial fluidized-bed conditions – A camera-probe based fuel tracking system*, Applied Energy, Volume 163, Pages 304-312
29. Martin Keller, Jason Fung, Henrik Leion, Tobias Mattisson, *Cu-impregnated alumina/silica bed materials for Chemical Looping Reforming of biomass gasification gas*, Fuel, Volume 180, Pages 448-456
30. Keller, M., Leion, H. and Mattisson, T. (2016), *Use of CuO/MgAl₂O₄ and La_{0.8}Sr_{0.2}FeO₃/γ-Al₂O₃ in chemical looping reforming system for tar removal from gasification gas*. AIChE J., 62: 38–45.

31. Jelena Marinkovic, Martin Seemann, Georg Schwebel, Henrik Thunman, *Impact of Biomass Ash–Bauxite Bed Interactions on an Indirect Biomass Gasifier*, *Energy & Fuels* Vol. 30 (5), Pages 4044-4052
32. Huong N. T. Nguyen, Nicolas Berguerand, Georg L. Schwebel, Henrik Thunman, *Importance of Decomposition Reactions for Catalytic Conversion of Tar and Light Hydrocarbons. An Application with an Ilmenite Catalyst*, *Industrial & Engineering Chemistry Research* 55 (46), Pages 11900-11909
33. Nicolas Berguerand, Teresa Berdugo Vilches , *Alkali-Feldspar as a Catalyst for Biomass Gasification in a 2-MW Indirect Gasifier*, *Energy & Fuels*, Article ASAP
34. Placid A. Tchoffor, Farzad Moradian, Anita Pettersson, Kent O. Davidsson, Henrik Thunman. *Influence of Fuel Ash Characteristics on the Release of Potassium, Chlorine, and Sulfur from Biomass Fuels under Steam-Fluidized Bed Gasification Conditions*, *Energy & Fuels* 30 (12), Pages 10435-10442
35. Zhe Zhang, Ningchen Tian, Wennan Zhang, Xiaodong Huang, Le Ruan, Ling Wu, *Inhibition of carbon steel corrosion in phase-change-materials solution by methionine and proline*, *Corrosion Science* 111, 2016, Pages 675-689

Conference articles

1. Lundberg, L., Soria-Verdugo, A., Pallares, D., Johansson, R, Thunman, H. *The role of fuel mixing on char conversion in a fluidized bed*, Fluidization XV 2016, Fairmont Le Chateau Montebello Quebec, Canada
2. Köhler, A., Rasch, A., Pallares, D., Johansson, F. *Experimental characterization of axial fuel mixing in fluidized beds by magnetic particle tracking*, Fluidization XV 2016, Fairmont Le Chateau Montebello Quebec, Canada
3. Sepman, A., Ögren, Y., Qu, Z., Wiinikka, H., Schmidt, F.M. *Real-time in situ multi-parameter TDLAS sensing in the reactor core of an entrained-flow biomass gasifier*, 36th International Symposium on Combustion 2016, Seoul, Korea
4. Ögren, Y., Sepman, A., Wiinikka, H. *Camera based monitoring of process parameters relevant for entrained flow gasification*, 36th International Symposium on Combustion 2016, Seoul, Korea
5. Qu Z., Holmgren P., Skoglund N., Wagner D.R., Broström M., Schmidt F. *TDLAS-based in situ detection of atomic potassium during combustion of biomass in an entrained flow reactor*, 22nd International Conference on Impacts of Fuel Quality on Power Production 2016, Prague, Czech Republic

6. Salik K., Weiland F., Pettersson E., Wiinikka H., Wingren A., Strandberg M., PommerL., Padban N., Hinderson A., Khodayari R., Carbo M., Nordin A. *Entrained Flow Gasification of Torrefied Lignocellulosic Biomass*, 24th European Biomass Conference and Exhibition 2016, Amsterdam, The Netherlands
7. Simonsson J., Olofsson N.-E., Bladh H., Sanati M., Bengtsson P-E. *Influence of potassium and iron chloride on the early stages of soot formation using imaging LII/ELS and TEM techniques*, 7th International Workshop on Laser-induced Incandescence 2016, Lake Tahoe, USA
8. Simonsson J., Olofsson N.-E., Török S., Bladh H., Bengtsson P-E. *Optical and physical properties of soot in premixed flames measured using LII, ELS and extinction*, 7th International Workshop on Laser-induced Incandescence 2016, Lake Tahoe, USA
9. Simonsson J., Török S., Olofsson N.-E., Bladh H., Bengtsson P-E. *Optical and physical properties of flame soot measured using extinction, LII and ELS*, 36th International Symposium on Combustion 2016, Seoul, Korea
10. Simonsson J., Olofsson N.-E., Bladh H., Sanati M., Bengtsson P-E. *Influence of potassium and iron chloride on the early stages of soot formation using imaging LII/ELS and TEM techniques*, 36th International Symposium on Combustion 2016, Seoul, Korea
11. Parsland, C., Larsson, A., Brandin, J. *Ni-substituted Ba-hexaaluminates catalyst for tar reforming from gasified biomass*, 17th Nordic Symposium on Catalysis 2016, Lund, Sweden
12. Phounglamcheik A., Bähler MU., Donaj P., Amovic M., Ljunggren R., Engvall K. (2016). *Pyrolysis of wood in a rotary kiln pyrolyzer: Modeling and pilot plant trials*. 8th International Conference on Applied Energy (ICAE2016). Beijing, China 2016
13. Samuelsson LN., Bähler MU. (2016). *Model-free isoconversional predictions of conversion rates during pyrolysis of lignocellulosic biomass*. International Confederation for Thermal Analysis and Calorimetry (ICTAC), Annual Conference, Orlando, Florida, USA 2016
14. Moud P.H., Andersson K.J., Lanza R., Engvall K. *The role of alkali in heterogeneous catalysis for gas cleaning: parametric studies on combined effects of biomass derived impurities on tar reforming catalyst*. 17th Nordic Symposium on Catalysis 2016, Lund, Sweden
15. Moud P.H., Andersson K.J., Engvall K. *Biomass-derived gas-phase alkali as a tar reforming catalyst promoter in sulfur-laden biomass gasification gas*, ACS American Chemical Society meeting 2016, San Diego, USA.
16. Sadegh-Vaziri R., Bähler MU. *A hollow-core-shell model for describing chemisorption of H₂S from raw syngas in a packed bed reactor of ZnO*. 22nd International Congress of Chemical and Process Engineering (CHISA), Prague, Czech Republic 2016

17. Bengtsson P-E. *Laser diagnostics of soot in combustion and atmospheric research*, Lund Laser Centre Seminar series 2016, Lund, Sweden
18. Carvalho L., Furuşjö E., Andersson J., Jafri Y., Wetterlund E., Landälv I., Lundgren J. *Black liquor gasification with expanded raw material base*, Paper&Biorefinery Conference, Graz, Austria
19. Knutsson, P., Velde Vilg, J., Knutsson, J., Steenari, B.-M. *Phycoremediation of heavy metals from biomass ash*, International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management, SGEM – 2016
20. Seemann M, Marinkovic J., Thunman H. *Understanding the start-up, -knowledge transfer from bed material testing at Chalmers to the operation of the GoBiGas Gasification unit*, 24th European Biomass Conference & Exhibition, Amsterdam, 2016