



Veröffentlichungen

Dr.-Ing. M. Mancini

- [1] MANCINI, M., WEBER, R., and BOLLETTINI, U. *Development of mathematical model for high temperature air combustion*. Fluent CFD User Group Meeting. 2001.
- [2] MANCINI, M., WEBER, R., and BOLLETTINI, U. *Mathematical Models Development for Design of HTAC Systems*. 4th International Symposium on High Temperature Air Combustion and Gasification, Rome, Italy. 2001.
- [3] MANCINI, M. and WEBER, R. *Formation and Destruction of Nitrogen Oxides in Combustion of Natural Gas with High Temperature Air*. 5th International Symposium on High Temperature Air Combustion and Gasification HTACG, Yokohama, Japan. 2002.
- [4] MANCINI, M., WEBER, R., and BOLLETTINI, U. *Predicting NO_x Emissions of a Burner Operated in Flameless Oxidation Mode*. Proceedings of the Combustion Institute 29 (2002) 1155–1163.
- [5] WEBER, R., BRAUCKMANN, D., SCHOLZ, R., MANCINI, M., and KAMP, W. vd. *Numerical simulations of Cement Kiln Flames*. 6th European Conference on Industrial Furnaces and Boilers INFUB, Estoril-Lisboa, Portugal. 2002.
- [6] MANCINI, M., SCHWÖPPE, P., and WEBER, R. *Examining NO_x Chemistry in High Temperature Air Combustion Process*. Proceedings of XVIII International Symposium on Combustion Processes. 2003.
- [7] WEBER, R., BRAUCKMANN, D., SCHOLZ, R., MANCINI, M., and KAMP, W. vd. *Numerical Simulation of a Coal Fed Burner*. Ciments, Betons, Platres, Chaux 864 (2003) 2–7.
- [8] HEKKENS, R. and MANCINI, M. *CFD modeling for high efficiency combustion*. 14th International IFRF Members' Conference - A Sustainable Energy Supply for Industry - A Challenge for the IFRF, Noordwijkerhout, Netherlands. 2004.
- [9] MAYER, C., KERSCHBAUMER, W., MANCINI, M., and WEBER, R. *Experimental and numerical investigation of a heating and ignition process of pulverized coal*. FLUENT CFD Forum. 2005.
- [10] SCHAFFEL, N., SZLEK, A., LOEFFLER, K., MANCINI, M., and WEBER, R. *HTAC Application for Solid Fuel Combustion*. XIX International Symposium on Combustion Processes, Wisla, Poland. 2005.
- [11] SCHAFFEL, N., SZLEK, A., WILK, R., LOEFFLER, K., MANCINI, M., and WEBER, R. *Mathematical Modelling of MILD/Flameless Combustion of Pulverized Coal*. 6th International Symposium on High Temperature Air Combustion and Gasification, Essen, Germany. 2005.



- [12] SZLEK, A., WILK, R., LÖFFLER, K., MANCINI, M., and WEBER, R. *HTAC Application for Solid Fuel Combustion*. 6th International Symposium on High Temperature Air Combustion and Gasification, Essen, Germany. 2005.
- [13] KUPKA, T., MANCINI, M., IRMER, M., and WEBER, R. *Investigation of Ash Deposit Formation during Co-Firing of Coal with Sewage Sludge, Saw Dust and Refuse Derived Fuel*. 10th International Conference on Boiler Technology. 2006.
- [14] KUPKA, T., MANCINI, M., and WEBER, R. *A CFD analysis of ash particle flow around pipes including particle impaction efficiency calculation*. 6th International Conference on Industrial Furnaces and Boilers, Porto, Portugal. 2006.
- [15] KUPKA, T., MANCINI, M., and WEBER, R. *Experiments Supported by CFD Simulations for the Evaluation of Ash Deposit Formation during Co-Firing of Coal with Alternative Fuels*. 23. Deutscher Flammentag - Verbrennung und Feuerung (VDI Berichte 1988), Berlin, Germany. 2007.
- [16] KUPKA, T., ZAJĄC, K., MANCINI, M., and WEBER, R. *A CFD Analysis of ash particle flow around pipes including particle impaction efficiency calculations*. 20th ECOS Conference, Padova, Italy. 2007.
- [17] KUPKA, T., ZAJĄC, K., MANCINI, M., and WEBER, R. *A laboratory method supported by simple CFD analysis for the evaluation of ash deposit formation during co-firing of coal with biomass-, bio-waste- and waste materials*. 15th Members' Conference - Combustion in an efficient and environmentally acceptable manner, Pisa, Italy. 2007.
- [18] MANCINI, M., SCHWÖPPE, P., and WEBER, R. *Influence of the Mixing on NO_x Emissions in the MILD Combustion of Natural Gas*. 20th International Conference on Efficiency, Costs, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS), Padova, Italy. 2007.
- [19] MANCINI, M., SCHWÖPPE, P., and WEBER, R. *Investigations on the modeling assumptions for NO_x emissions calculations in the MILD combustion of Natural Gas*. 15th Members' Conference - Combustion in an efficient and environmentally acceptable manner, Pisa, Italy. 2007.
- [20] MANCINI, M., SCHWÖPPE, P., and WEBER, R. *Numerical Computation of NO_x Formation in MILD Combustion of Natural Gas*. II ECCOMAS Thematic Conference on Computational Combustion, Delft, Netherlands. 2007.
- [21] MANCINI, M., SCHWÖPPE, P., and WEBER, R. *On Mathematical Modelling of Flameless Combustion*. Combustion and Flame 150 (2007) 54–59.
- [22] MANCINI, M., SCHWÖPPE, P., and WEBER, R. *Predictions of NO_x Formation in MILD/Flameless Combustion*. 23. Deutscher Flammentag - Verbrennung und Feuerung (VDI Berichte 1988), Berlin, Germany. 2007.

- [23] MANCINI, M., WEBER, R., SCHAFFEL, N., and SZLEK, A. *Analysis of numerical modeling in predicting chemistry and NO_x in MILD combustion*. XX International Symposium on Combustion Processes, Pultusk, Poland. 2007.
- [24] MANCINI, M., WECEL, G., BIALECKI, R., and WEBER, R. *Advances in Boundary Element Method Used to Predict Radiative Heat Transfer in Flames*. II ECCOMAS Thematic Conference on Computational Combustion, Delft, Netherlands. 2007.
- [25] MAYER, C., KERSCHBAUMER, W., MANCINI, M., and WEBER, R. *Time Dependent Simulations of Dispersion of a Cloud of Solid Particles*. Journal of the Energy Institute 80 (3) (2007) 181–183.
- [26] SCHAFFEL, N., SZLEK, A., MANCINI, M., and WEBER, R. *Analysis of High Temperature Air Combustion (HTAC) boiler for efficient and clean power production using Computational Fluid Dynamics*. 20th ECOS Conference, Padova, Italy. 2007.
- [27] SCHAFFEL, N., SZLEK, A., MANCINI, M., and WEBER, R. *Application of HTAC technology in supercritical pulverized coal boiler*. XX International Symposium on Combustion Processes, Pultusk, Poland. 2007.
- [28] SCHAFFEL, N., SZLEK, A., MANCINI, M., and WEBER, R. *Design of the HTAC Boiler Fired with Pulverized Coal Using Numerical Modeling Methods*. II ECCOMAS Thematic Conference on Computational Combustion, Delft, Netherlands. 2007.
- [29] SCHAFFEL, N., SZLEK, A., MANCINI, M., and WEBER, R. *Numerical Investigation of the Configuration of a Pulverized Coal Fired Boiler Operated with HTAC Technology*. 23. Deutscher Flammentag - Verbrennung und Feuerung (VDI Berichte 1988), Berlin, Germany. 2007.
- [30] WECEL, G., BIALECKI, R. A., and MANCINI, M. *BEM employing Cartesian hierarchical meshes*. 5th International Symposium on Radiative Transfer, Bodrum, Turkey. 2007.
- [31] WECEL, G., BIALECKI, R. A., MANCINI, M., and WEBER, R. *Radiative Heat Transfer in Industrial Furnaces*. Fortschrittsberichte der Deutschen Keramischen Gesellschaft, Verfahrenstechnik, Thermische Verfahrenstechnik. 1. 2007.
- [32] WORBERG, R., KIM, R., SCHUMACHER, R., HERMANN, SCHOLZ, WEBER, and MANCINI. *Wärmetechnik des Heat-Recovery-Ofens*. Fachtagung Kokereitechnik. 2007.
- [33] KUPKA, T., MANCINI, M., IRMER, M., and WEBER, R. *Investigation of ash deposit formation during co-firing of coal with sewage sludge, saw-dust and refuse derived fuel*. Fuel 87 (2008) 2824–2837.
- [34] MANCINI, M., WEBER, R., SCHAFFEL, N., and SZLEK, A. *CFD Method and Detailed Mechanisms Modelling in Predicting NO_x in MILD Combustion*. 7th



International Symposium on High Temperature Air Combustion and Gasification, Phuket, Thailand. 2008.

- [35] SCHAFFEL, N., SZLEK, A., MANCINI, M., and WEBER, R. *Application of HTAC technology in power boilers fired with pulverized coal*. 7th International Symposium on High Temperature Air Combustion and Gasification, Phuket, Thailand. 2008.
- [36] SCHAFFEL, N., SZLEK, A., MANCINI, M., and WEBER, R. *HTAC boiler fired with pulverized coal for ecologic and efficient electricity production*. *Archivum Combustionis* 28 (2008) 105–112.
- [37] SCHAFFEL, N., SZLEK, A., MANCINI, M., and WEBER, R. *Simulations of the steam power cycle with High Temperature Air Combustion (HTAC) boiler*. 21th ECOS Conference, Krakau, Poland. 2008.
- [38] HEYMAN, C., RICHARDSON, A., and MANCINI, M. *The Impact of Turbulence- and Chemistry-Turbulence Interaction Models in the Simulation of OXY-Fuel*. 10th Conference on Energy for a Clean Environment (Clean Air), Lissabon, Portugal. 2009.
- [39] SCHAFFEL-MANCINI, N., MANCINI, M., SZLEK, A., and WEBER, R. *Ecological evaluation of the pulverized coal combustion in HTAC technology*. International Conference on Optimization using Exergy-Based Methods and Computational Fluid Dynamics, Berlin, Germany. 2009.
- [40] SCHAFFEL, N., MANCINI, M., SZLEK, A., and WEBER, R. *Mathematical modeling of MILD combustion of pulverized coal*. *Combustion and Flame* 156 (9) (2009) 1771 –1784.
- [41] SCHAFFEL, N., SZLEK, A., MANCINI, M., and WEBER, R. *Application of HTAC technology to pulverized coal boilers*. 10th Conference on Energy for a Clean Environment (Clean Air), Lissabon, Portugal. 2009.
- [42] WROBEL, J. U., MANCINI, M., WEBER, R., and LÖFFLER, R. *An Advanced Model of Pulverized Coal Combustion for CFD Simulations*. International Conference on Optimization using Exergy-Based Methods and Computational Fluid Dynamics, Berlin, Germany. 2009.
- [43] MANCINI, M. and WEBER, R. *NO_x modeling in HTAC Combustion*. 8th International Symposium on High Temperature Air Combustion and Gasification, Poznan, Poland. 2010.
- [44] SCHAFFEL-MANCINI, N., MANCINI, M., SZLEK, A., and R.WEBER. *Novel Concept for Supercritical Boilers*. 11th International Conference on Boiler Technology, Szczyrk, Poland. 2010.
- [45] SCHAFFEL-MANCINI, N., MANCINI, M., SZLEK, A., and WEBER, R. *Novel conceptual design of a supercritical pulverized coal boiler utilizing high temperature air combustion (HTAC) technology*. *Energy* 35 (7) (2010) 2752 – 2760.



- [46] SCHAFFEL-MANCINI, N., MANCINI, M., and WEBER, R. *Turbulence-chemistry interaction in mild and FLOX combustion*. 6th International Symposium on High Temperature Air Combustion and Gasification, Poznan, Poland. 2010.
- [47] WEBER, R., MANCINI, M., SCHAFFEL-MANCINI, N., and KUPKA, T. *Mathematical Modelling of Ash Deposition in a Coal-Fired Experimental Furnace*. 23th Impacts of Fuel Quality on Power Production and Environment, Lapland, Finland. 2010.
- [48] WEBER, R., MANCINI, M., SCHAFFEL-MANCINI, N., and KUPKA, T. *Mathematical Modelling of Ash Deposition*. XXI International Symposium on Combustion Processes, Miedzzydroje, Poland. 2010.
- [49] JAKOBS, T., FLECK, S., MANCINI, M., WEBER, R., and KOLB, T. *Gasification of High Viscous Slurry - R&D on Atomization and Numerical Simulation*. 36th International Technical Conference on Clean Coal and Fuel Systems, Clearwater, USA. 2011.
- [50] MANCINI, M., BUCZYNSKI, R., WEBER, R., FLECK, S., STOESSER, P., and KOLB, T. *Gasification of Glycol: Measurements and Mathematical Modelling*. 25. Deutscher Flammentag - Verbrennung und Feuerung (VDI Berichte 2119), Karlsruhe, Germany. 2011.
- [51] WEBER, R., MANCINI, M., SCHAFFEL-MANCINI, N., and KUPKA, T. *Mathematical Modelling of Ash Deposition in a Coal-Fired Experimental Reactor*. 9th European Conference on Industrial Furnances and Boilers, Estoril, Portugal. 2011.
- [52] BECKMANN, A. M., MANCINI, M., and WEBER, R. *CFD-Based Modelling of the Ash Behaviour in a Pulverized Coal Flame*. 44. Kraftwerkstechnisches Kolloquium, Dresden, Germany. 2012.
- [53] BECKMANN, A. M., MANCINI, M., and WEBER, R. *CFD Modelling of a pulverized coal flame with emphasis on predicting the ash deposition behaviour*. 24th Impacts of Fuel Quality on Power Production and Environment, Puchberg, Austria. 2012.
- [54] JAKOBS, T., DJORDJEVIC, N., FLECK, S., MANCINI, M., WEBER, R., and KOLB, T. *Gasification of high viscous slurry R&D on atomization and numerical simulation*. Applied Energy 93 (0) (2012) 449 –456.
- [55] MUSIOL, A., MANCINI, M., and WEBER, R. *Numerical Simulation of coal and biomass flame in a small scale combustion chamber*. 17th IFRF Members Conference, Chateau de Maffhers, France. 2012.
- [56] WEBER, R., MANCINI, M., SCHAFFEL-MANCINI, N., and KUPKA, T. *On Importance of Fluid Dynamics in CFD Predictions of Ash Deposits*. 24th Impacts of Fuel Quality on Power Production and Environment, Puchberg, Austria. 2012.
- [57] ALBERTI, M., WEBER, R., MANCINI, M., and MODEST, M. *Comparison of models for predicting band emissivity of carbon dioxide and water vapour at*

- high temperatures*. International Journal of Heat and Mass Transfer 64 (2013) 910–925.
- [58] BECKMANN, A. M., MANCINI, M., and WEBER, R. *CFD-Modellierung einer Kohlenstaubflamme mit dem Fokus auf der Vorhersage der Ascheablagerung*. 26. Deutscher Flammentag - Verbrennung und Feuerung (VDI Berichte 2161), Duisburg, Germany. 2013.
- [59] MANCINI, M., WEBER, R., WEIGAND, P., LEUCKEL, W., and KOLB, T. *Design of the entrained flow reactor for gasification of biomass based slurry*. 26. Deutscher Flammentag - Verbrennung und Feuerung (VDI Berichte 2161), Duisburg, Germany. 2013.
- [60] WEBER, R. and MANCINI, M. *Heterogene Kinetik der Koksverbrennung*. 45. Kraftwerkstechnisches Kolloquium, Dresden, Germany. 2013.
- [61] WEBER, R., MANCINI, M., SCHAFFEL-MANCINI, N., and KUPKA, T. *On predicting the ash behaviour using Computational Fluid Dynamics*. Fuel Processing Technology 105 (2013) 113 –128.
- [62] WEBER, R., SCHAFFEL-MANCINI, N., MANCINI, M., and KUPKA, T. *Fly ash deposition modelling: Requirements for accurate predictions of particle impaction on tubes using RANS-based computational fluid dynamics*. Fuel 108 (2013) 586 –596.
- [63] BECKMANN, A. M., MANCINI, M., and WEBER, R. *Coal Ash Particle Deposition Modeling: A Closer Look at Various CFD sub-models*. 25th Impacts of Fuel Quality on Power Production and Environment, Snowbird, USA. 2014.
- [64] BECKMANN, A. M., MANCINI, M., and WEBER, R. *Investigating Ash Deposition using Down-Fired Combustion Rig*. 12th International Conference on Boiler Technology, Szczyrk, Poland. 2014.
- [65] BRINKER, S. and WEBER, R. *Co-Combustion of Coal and Biomass in O₂/CO₂-atmosphere*. 25th Impacts of Fuel Quality on Power Production and Environment, Snowbird, USA. 2014.
- [66] ALBERTI, M., WEBER, R., MANCINI, M., FATEEV, A., and CLAUSEN, S. *On the accuracy of HITEMP-2010 calculated emissivities of Water Vapor and Carbon Dioxide*. 10th International Conference on Industrial Furnaces and Boilers, Porto, Portugal. 2015.
- [67] ALBERTI, M., WEBER, R., MANCINI, M., FATEEV, A., and CLAUSEN, S. *On the accuracy of HITEMP-2010 calculated emissivities of Water Vapor and Carbon Dioxide*. 12th International Conference on Energy for a Clean Environment, Lisboa, Portugal. 2015.
- [68] ALBERTI, M., WEBER, R., and MANCINI, M. *Bestimmung der Emissionskoeffizienten von Gas-Gemischen auf Grundlage von spektroskopischen Datenbanken*. 27. Deutscher Flammentag - Verbrennung und Feuerung (VDI Berichte 2267), Clausthal, Germany. 2015.



- [69] ALBERTI, M., WEBER, R., and MANCINI, M. *Calculation of Gas Emissivities at High Temperatures and High Pressures using HITEMP-2010*. XXII International Symposium on Combustion Processes, Gliwice, Poland. 2015.
- [70] ALBERTI, M., WEBER, R., and MANCINI, M. *Re-creating Hottel's emissivity charts for carbon dioxide and extending them to 40 bar pressure using HITEMP-2010 data base*. *Combustion & Flame* 162 (2015) 597–612.
- [71] ALBERTI, M., WEBER, R., MANCINI, M., FATEEV, A., and CLAUSEN, S. *Validation of HITEMP-2010 for Carbon Dioxide and Water Vapour at high temperatures and atmospheric pressures in 450-7600 cm⁻¹ spectral range*. *Journal of Quantitative Spectroscopy & Radiative Transfer* 157 (2015) 14–33.
- [72] BECKMANN, A. M., MANCINI, M., and WEBER, R. *CFD-Modellierung einer Kohlenstaubflamme unter besonderer Berücksichtigung der Vorhersage von Ascheablagerungen*. 27. Deutscher Flammentag - Verbrennung und Feuerung (VDI Berichte 2267), Clausthal, Germany. 2015.
- [73] WEBER, R. and MANCINI, M. *On predicting char burnout in pulverized coal combustion*. *Zeitschrift für Physikalische Chemie* 229 (5) (2015) 619–641.
- [74] ALBERTI, M., WEBER, R., and MANCINI, M. *Radiative Heat Transfer in a High Pressure Entrained Flow Gasifier*. 1st International Workshop on Oxy-Fuel Combustion, Montabaur, Germany. 2016.
- [75] ALBERTI, M., WEBER, R., and MANCINI, M. *Re-creating Hottel's emissivity charts for water vapor and extending them to 40 bar pressure using HITEMP-2010 data base*. *Combustion & Flame* 169 (2016) 141–153.
- [76] BECKMANN, A. M., MANCINI, M., WEBER, R., SEEBOLD, S., and MÜLLER, M. *Measurements and CFD modeling of a pulverized coal flame with emphasis on ash deposition*. *Fuel* 167 (2016) 168–179.
- [77] BECKMANN, A. M., MANCINI, M., and WEBER, R. *Towards understanding of deposit build-up mechanisms in our experimental facility: Experiments and CFD modeling of 15 kW coal flames*. 26th Impacts of Fuel Quality on Power Production and Environment, Prague, Czech Republic. 2016.
- [78] BIBRZYCKI, J., MANCINI, M., SZŁĘK, A., and WEBER, R. *A char combustion sub-model for CFD-predictions of fluidized bed combustion - experiments and mathematical modeling*. *Combustion and Flame* 163 (2016) 188–201.
- [79] JOHANSEN, J. M., GADSBØLL, R., THOMSEN, J., JENSEN, P. A., GLARBORG, P., EK, P., MARTINI, N. D., MANCINI, M., WEBER, R., and MITCHELL, R. E. *Devolatilization kinetics of woody biomass at short residence times and high heating rates and peak temperatures*. *Applied Energy* 162 (2016) 245–256.
- [80] KOLB, T., AIGNER, M., KNEER, R., MÜLLER, M., WEBER, R., and DJORDJEVIC, N. *Tackling the challenges in modelling entrained-flow gasification of low-grade feedstock*. *Journal of the Energy Institute* 89 (4) (2016) 485–503.