Fundamentals of Iron Flames

		Room
1	An experimental study of morphological and dynamic effects on the ignition of single iron particles *M. Abdallah, G. Finotello, Y. Shoshin, L.H.P. De Goey*	A
2	A statistical approach to study the particle morphology evolution during the iron particle oxidation *M.P. Deutschmann, A. Sperling, B. Böhm, A. Dreizler, Hermann Nirschl*	A
3	In Situ Characterization of Iron Particle Oxidation Using a Combination of Laser-Induced Breakdown Spectroscopy and Diffuse Back-Illumination for Renewable Energy Applications *M. Dorscht, M. Stark, K. Koschnick, A. Weinmann, B. Böhm, A. Dreizler, D. Geyer*	A
4	Towards reduced-order modeling of iron combustion using chemical reactor networks *S. Dübal, P. Steffens, D. Braig, J. Mich, A. Scholtissek, C. Hasse, H. Nicolai and S. Hartl*	A
5	Carrier-Phase DNS of Iron Particle Cloud Combustion in a Turbulent Mixing Layer: Effects of Particle Size *M.P. Ghofrani, A. Kempf*	A
6	Spatially resolved particle size distributions of nano-sized particles in iron dust flames of Bunsen-type *F. P. Hagen, J. H. Müller, B. Stelzner, D. Trimis*	A
7	Investigation of preferential concentration effects in turbulent iron jet flames in a plasma-heated co-flow using simultaneous Mie scattering and luminosity imaging *J. Hebel, C. Geschwindner, K. Westrup, B. Böhm, A. Dreizler*	A
8	A Numerical Study on the Effects of Preferential Concentration on the Combustion of Iron Particles: Simulations of Homogenous Isotropic Turbulence *S.S. Hemamalini, B. Cuenot, X.C. Mi,*	A
9	Burning velocities of hybrid iron-methane-air flames *M.R. Hulsbos, R.T.E. Hermanns, R.J.M Bastiaans, L.P.H. de Goey*	A
10	Transition of metal oxides from particle to gas phase *Matthieu Lalanne, Yasin Karakaya, Irenäus Wlokas, Igor Rahinov, Tina Kasper*	A
11	Low-temperature kinetics of the oxidation of iron powders *M. Kurnatowska, N. Fernando, Q. Fradet, A. Soria-Verdugo, L. Choisez, U. Riedel*	A
12	Assessment of CFD phase models for simulating iron combustion in retrofitted coal combustion chambers *R. Mehmood, Q. Fradet, U. Riedel*	A
13	Iron nanoparticle formation in resolved single microparticle simulations *Bich-Diep Nguyen, Arne Scholtissek, Tao Li, Daoguan Ning, Andreas Dreizler, Christian Hasse*	A

	Poster Session	Room
14	The influence of clustering on particle cloud combustion in homogeneous isotropic turbulence *G. Thäter, M. Carbone, T.-D. Luu, O. T. Stein, B. Frohnapfel*	A
15	Flame characteristics of iron dust counter-flow flames *C.E.A.G. van Gool, T. Hazenberg, J.A. van Oijen, L.P.H. de Goey*	A
16	Effect of a wall on the propagation of iron dust flames in a channel using boundary-layer resolved simulations *Faizan Habib Vance, Arne Scholtissek, Hendrik Nicolai, Christian Hasse*	A
17	Experimental study on the combustion characteristics of millimeter-sized iron particles *W. Tian, Y. Shoshin, V. Kornilov, L.P.H. de Goey, X.C. Mi*	N
18	Observation of Micro-explosion Phenomena in Iron Powder/Methane/Ammonia Combustion *Yan-Ru Wang, Yueh-Heng Li*	N
19	Effect of flame discreteness on the ignition and efficiency of turbulent iron flames *J. Hameete, X.C. Mi, T.A.M. Homan, N.J. Dam, L.P.H. de Goey*	N
20	Ignition and combustion characteristics of single iron particles in a novel drop-tube reactor *D. Ning, Y. Li, T. Li, B. Böhm, A. Dreizler*	N
21	Using a v-shaped flame to determine burning velocity of iron powder *H.E. Prime, Y.L. Shoshyn, R.T.E. Hermanns, L.P.H. de Goey*	N
22	Experiments and Large Eddy Simulation of a 47 kWth swirl-stabilized methane-assisted iron dust flame *P. Steffens, J. Hebel, D. Braig, A. Vahl, L. L. Berkel, H. Schneider, H. Nicolai, A. Scholtissek, B. Böhm, A. Dreizler and C. Hasse*	N
	Fundamentals and Technologies for Iron-Oxide Reduction	
23	Energy storage in iron: Influence of electrochemical conditions on deposited iron layers *J. Bao, M. Gerwin, K. Tschulik, U. I. Kramm*	C
24	Assessment of H-air and CH/H-air fuel-rich premixed flames for flash reduction of magnetite particles *Atanu Dolai, Giulia Finotello, XiaoCheng Mi*	C

25 Scale-bridging within the MeCRE model hierarchy by Bayesian model calibration of chemical reactor networks with model error quantification
L. Gossel, E. Corbean, S. Dübal, J. Neumann, P. Brand, M. Fricke, H. Nicolai, C. Hasse, P. Stephan, S. Hartl, S. Ulbrich, D. Bothe

26 Enhancing Iron Fuel Sustainability: Novel Electrochemical Regeneration of Iron Powder
A.I. Majid, G. Ding, G. Finotello, J. van der Schaaf, N.G. Deen, Y. Tang

27 Hydrogen-Based Flash Ironmaking: Multi-Criteria Optimization with an Exergy-Centric Approach
J. Neumann, P. Foresto, E. Corbean, F. Dammel, S. Ulbrich, V. Zeller, P. Stephan

MeCRE Feedstock: Material Sourcing and Influence of Impurities

28 Exploring the Impact of Aluminum on Iron Powder Combustion for Sustainable Energy Storage
L. Ahmad, Z. Bruyr, F. Contino, P.J. Jacques, L. Choisez

29 On the reduction and combustion of mill scale as a metal fuel
B. Kuypers, N. Stevens, C. Hessels, P.J. Jacques, G. Finotello, L. Choisez

Non-Iron Metals as Future Energy Carriers

30 PBE-PDF modelling of aluminum combustion in a partially stirred reactor
J. Finke and F. Sewerin

31 Enhanced cyclability of Al-, Ce-, and Mo-modified iron oxides for hydrogen storage via a reversible metal oxide redox cycle
A.Knapp, C. Kuhn, O. Deutschmann

32 A Point-Particle Model for Single Aluminum Particle Combustion
J. Mich, J.V. Hennings de Lara, C. Hasse, H. Nicolai

33 Burning Speed of Self-Sustained Reactions of Aluminum Powder with Compressed Water
M. Parker, F. Saceleanu, R. Kholghy

34 Analysis of kinetic mechanisms for aluminum oxidation in oxygen and steam environments
Yue Qiu, Elna J. K. Nilsson, and Xue-Song Bai

35 Effect of non-thermal plasma treatment on reactivity of micro aluminum powder with compressed water
F. Saceleanu, M. Parker, R. Kholghy, D. Ruth, M. Plunkett, O. Kodra, K. S. Kim

36 Kinetics of the aluminum-water reaction based on a multistage shrinking core model
Mahsa Salehi Mobarakeh, Florin Saceleanu, Thu V. Voung, Emma R. Master, M Reza Kholghy

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37	Experimental study of the effect of oxygen concentration on the size of oxide particles generated by lifted aluminum dust micro-flame *Y. Shoshin, V. Kornilov*	
38	Sensitivity analysis of a point-particle model for aluminum particle combustion *H. Chu, S. Bose, M. S. Mobarakeh, P. Farmand, R. Kholghy, H. Pitsch*	

Techno-Economic and Life Cycle Assessment

39	Preliminary Life Cycle and Technoeconomic Analysis of Metal Fuel Power Plants *M. Mckiel, F. Saceleanu, R. Kholghy*	

Poster Rooms

Ampère 

Newton 

Coffee/ Kopernikus