



PROGRAMME – ORAL PRESENTATIONS

DAY 1 – SUNDAY – 02 APRIL 2023		
14:30 – 17:00		Registration
Session 1		17:00 – 18:00 Chair: M Claeys (University of Cape Town)
17:00		Opening address: M Claeys (Conference Chair, University of Cape Town, South Africa)
17:15	PL01	<u>FR Grobler, J Naidoo</u> (Sasol): <i>Sasol's Fischer-Tropsch technology: A key enabler for transition to a low carbon world</i>
18:00 – 20:00		Poster session and welcome function

DAY 2 – MONDAY – 03 APRIL 2023		
07:15 – 08:30		Registration
Session 2		8:30 – 10:35 Chair: J Gascon (King Abdullah University of Science and Technology)
08:30	PL02	<u>W Leitner</u> (Max Planck Institute for Chemical Energy Conversion): <i>"Power-to-X" - Activation and transfer of hydrogen for the selective conversion of renewable carbon sources to fuels and chemicals</i>
09:15	OR01	<u>M do Carmo Rangel, GA dos Santos, FM Mayer</u> (Universidade Federal do Rio Grande do Sul): <i>Improvement of perovskites-based catalysts to produce syngas</i>
09:35	OR02	<u>CM Damaskinos, MA Vasiliades, AM Efstathiou</u> (University of Cyprus): <i>Advancement of design of Ni/Ce_{0.8}Ti_{0.2}O_{2-δ} for the dry reforming of methane using transient and isotopic techniques</i>
09:55	OR03	<u>R Calligaro, S Mauri, M Boaro, J Llorca, P Torelli, A Trovarelli</u> (University of Udine): <i>Role of mechano-chemical synthesis of Ni/CeO₂ catalysts for methane dry reforming</i>
10:15	OR04	<u>M Rautenbach, M Østberg, PM Mortensen, K Aasberg-Petersen</u> (Topsoe A/S): <i>eREACT™: Electrification of synthesis gas production</i>
10:35 – 11:00		Tea/Coffee



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DAY 2 – MONDAY – 03 APRIL 2023	
Session 3	
11:00 – 12:20 G Prieto (Universitat Politècnica de València-Consejo Superior de Investigaciones Científicas)	
11:00	OR05
<u>B Mutz</u> , P Kolb, M Weber (hte GmbH): <i>Advanced high throughput technology to speed-up catalyst R&D in rWGS as enabler for CO₂ conversion toward chemicals and fuels</i>	
11:20	OR06
<u>W Marquart</u> , M Claeys, N Fischer (University of Cape Town): <i>CO₂ reduction to syngas over Mo₂C-based catalysts</i>	
11:40	OR07
A Parastaev, N Kosinov, <u>EJM Hensen</u> (Eindhoven University of Technology): <i>Breaking structure sensitivity in CO₂ hydrogenation: on the role of the metal-metal oxide interfaces</i>	
12:00	OR08
<u>J van de Loosdrecht</u> , ZG Duma, NM Musyoka (CSIR): <i>CSIR research on green methanol via direct CO₂ hydrogenation route</i>	
12:20 – 12:45 Group photograph	
12:45 – 13:45 Lunch	
Session 4	
13:50 – 15:30 Chair: BM Weckhuysen (Utrecht University)	
13:50	PL03
<u>J Gascon</u> (King Abdullah University of Science and Technology): <i>CO₂ to what? The carbon dioxide utilization paradox</i>	
14:30	OR09
B Mockenhaupt, G Behrendt, P Schwiderowski, L Pandit, J Jelic, A Boubnov, E Saraçi, Q Yang, E Kondratenko, J-D Grunwaldt, F Studt, M Muhler, <u>M Behrens</u> (Kiel University): <i>Insight into methanol synthesis by controlled promotion and poisoning of copper catalysts</i>	
14:50	OR10
<u>P Schühle</u> , M Schmidt, L Schill, A Riisager, P Wasserscheid, J Albert (Friedrich-Alexander-Universität Erlangen-Nürnberg): <i>The influence of gas impurities on the performance of In₂O₃/ZrO₂-catalysts for CO₂-hydrogenation to methanol</i>	
15:10	OR11
<u>L Liu</u> , A Kaychouhi, N Kosinov, EJM Hensen (Eindhoven University of Technology): <i>Understanding the promoting effect of Al and Cr on In-oxide catalysts for CO₂ hydrogenation to methanol</i>	
15:30 – 15:55 Tea/Coffee	



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Session 5		15:55 – 17:45 Chair EJM Hensen (Eindhoven University of Technology)
15:55	KN01	<u>CJ Weststrate</u> , JW Niemantsverdriet (Syngaschem): <i>Using surface science to study catalytic processes: A bottom-up approach to Fischer-Tropsch synthesis</i>
16:25	OR12	<u>P Wang</u> , F-K Chiang, AI Dugulan, J Dong, RJP. Broos, J Chai, IAW Filot, R Wang, X Zhang, Q Lin, Y Lv, Z Men, EJM Hensen (National Institute of Clean-and-Low-Carbon Energy): <i>Carbon-efficient conversion of synthesis gas to linear α-olefins by a highly active phase-pure χ-iron-carbide catalyst</i>
16:45	OR13	<u>MA Vasiliades</u> , NS Govender, A Govender, R Crous, D Moodley, T Botha, <u>AM Efstathiou</u> (University of Cyprus): <i>Effect of H_2 pressure on the carbon path of methanation reaction on $Co/\gamma-Al_2O_3$ studied by transient isotopic and operando methodologies</i>
17:05	OR14	<u>Q Chang</u> , C Zhang, J Xu, X Wen, D de Oliveira, M Claeys, Y Yang, Y Li (Synfuels China Technology Co.): <i>Fundamental studies of iron catalyst for Fischer-Tropsch synthesis: Carbide phase, size effect, and Fe-SiO₂ interaction</i>
17:25	OR15	<u>JP Lewis</u> (Hong Kong Quantum AI Laboratory): <i>Machine learning meets quantum chemistry in catalyst design</i>

DAY 3 – TUESDAY – 04 APRIL 2023		
Session 6		8:30 – 10:15 Chair: N Coville (University of Witwatersrand)
08:30	PL04	<u>BM Weckhuysen</u> (Utrecht University): <i>Operando spectroscopy and microscopy of the catalytic conversion of carbon monoxide and carbon dioxide</i>
09:15	OR16	<u>S Calnan</u> , M Bär, CE Jimenez, D Wallacher, T Sontheimer, R Schlattmann (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH): <i>Thin film catalysts for Fischer-Tropsch synthesis of C_{5+} products</i>
09:35	OR17	<u>R Elbuga-llica</u> , <u>A Zimina</u> , M-A Serrer, E Saraçi, D Moodley, J-D Grunwaldt (IKFT-KIT): <i>High pressure and long-term operando studies for production of sustainable fuels & chemicals: Bridging industry and synchrotron</i>
09:55	OR18	<u>M Claeys</u> , E van Steen, T Botha, R Crous, A Ferreira, A Harilal, DJ Moodley, P Moodley, E du Plessis, K Visagie (University of Cape Town): <i>Oxidation of Hägg carbide during high temperature Fischer-Tropsch synthesis: in-situ observations</i>
10:15 – 10:45		Tea/Coffee



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DAY 3 – TUESDAY – 04 APRIL 2023		
Session 7		10:45 – 12:35 Chair: CJ Weststrate (Syngaschem)
10:45	KN02	<u>AM Beale</u> , Y Odarchenko, C Qiu (University College London): <i>Resolving metal-support interactions on Co/TiO₂ Fischer-Tropsch catalysts</i>
11:15	OR19	C Ma, Y We, H Wang, X Guo, <u>C Zhang</u> , H Xiang, Y Yang, Y Li (Synfuels China): <i>MOFs derived M@C (M=Mn, Fe, Co, Zn) catalysts for syngas to chemicals: olefin, wax and dimethyl ether</i>
11:35	OR20	<u>X Ren</u> , IAW Filot, EJM. Hensen (Eindhoven University of Technology): <i>The nature of potassium promotion of χ-Fe₅C₂ for high C₂-C₄ olefins selectivity in the Fischer-Tropsch reaction</i>
11:55	OR21	<u>DH Chun</u> , GB Rhim, KY Kim, B-H Kim, KY Koo, MH Youn (Korea Institute of Energy Research): <i>Spontaneously activatable iron-based catalysts for Fischer-Tropsch synthesis</i>
12:15	OR22	M Einemann, <u>F Roessner</u> (Carl von Ossietzky University): <i>Influence of ammonia on the iron-based Fischer-Tropsch synthesis</i>
12:35 – 13:30		Lunch
Session 8		13:30 – 15:00 Chair: J Xu (Synfuels China)
13:30	KN03	R Dittmeyer (KIT): <i>Modular technologies for decentralised Power-to-X applications</i>
14:00	OR23	<u>Lj Gavrilović</u> , SS Kazi, M Osman, OLI Encinas, EA Blekkan (Institute for Energy Technology): <i>Sorption-enhanced Fischer-Tropsch synthesis – effect of water removal</i>
14:20	OR24	<u>O Ivanez</u> , AS Martin, EA Blekkan (Norwegian University of Science and Technology): <i>Deactivation by phosphorus on Co-based catalysts for Fischer-Tropsch</i>
14:40	OR25	<u>JH Potgieter</u> , DJ Moodley, JM Botha, K Visagie, M Frank, MM Hauman, DTL Manong, E van Steen, M Claeys, P Pfeiffer, T Böltken (SASOL): <i>Co/Alumina catalysts for PtL (power-to-liquid) applications: from micro-to-pilot scale</i>
15:00 – 15:30		Tea/Coffee



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DAY 3 – TUESDAY – 04 APRIL 2023		
Session 9		15:30 – 17:20 Chair: E van Steen (University of Cape Town)
15:30	OR26	M Khasu, P Ketlogetswe, W Marquart, AJ Mayer, S Dann, SA Kondrat, M Claeys, <u>N Fischer</u> (University of Cape Town): <i>Empowering catalyst supports – a new functional support structure</i>
15:50	OR27	<u>X Wen</u> , Y Yang, H Jiao, Y Li (Chinese Academy of Science): <i>Rational design of Fe-based catalysts for Fischer-Tropsch synthesis from theoretical prediction to experimental confirmation</i>
16:10	OR28	<u>S Li</u> , R Pestman, P Wang, EJM Hensen (Eindhoven University of Technology): <i>Optimizing carburization of Fe-based catalysts towards phase-pure χ-Fe₅C₂ for improved Fischer-Tropsch synthesis</i>
16:30	OR29	<u>J Aluha</u> (Mintek): <i>Unique nanometric Co-Fe/C bimetallic catalyst produced through plasma for Fischer-Tropsch synthesis</i>
16:50	KN04	<u>Y-W Li</u> (Synfuels China): <i>Industrialization of coal to clean liquid fuels</i>
17:45		Buses depart for dinner
19:00		Informal dinner at Jonkershuis Restaurant, Groot Constantia

DAY 4 – WEDNESDAY – 05 APRIL 2023		
Session 10		8:30 – 10:40 Chair: R Dittmeyer (KIT)
08:30	KN05	<u>DJ Moodley</u> , JM Botha, R Burton, E van Steen, M Claeys, R. Schlatmann, E. Reichelt, A Zimina, J-D Grunwaldt (Sasol): <i>A sustainable approach to aviation fuels production: Focus on Fischer-Tropsch catalysis</i>
09:00	OR30	<u>G Herz</u> , M Gallwitz, P Adam, R Nake, M Jahn, E Reichelt (Fraunhofer Institute for Ceramic Technologies and Systems IKTS): <i>Demonstration of process integration schemes for SOEL-based Power-to-Liquid processes</i>
09:20	OR31	<u>Z Men</u> , Z Guo, Q Lin, K Zhang, M Cheng, W Li, H Chang, H Zhao, Y Lv, X Meng, Y Bu, T Wang, EJM Hensen, P Wang (National Institute of Clean-and-Low-Carbon Energy): <i>Research and development of advanced CTL and product upgrading integrated technology</i>
09:40	OR32	<u>J Paterson</u> , A Eschenbacher, A Coe, J Clarkson (BP): <i>Fischer-Tropsch – An old technology with new opportunities</i>



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DAY 4 – WEDNESDAY – 05 APRIL 2023		
10:00	OR33	<u>M Medicus</u> , J Mettke, F Wolke, E Reichelt, M Jahn (Fraunhofer IKTS): <i>From nipper to giant – Development and up-scaling of iron-based catalysts for Fischer-Tropsch synthesis of higher alcohols</i>
10:20	OR34	<u>R Brosius</u> , PJ Kooyman, JCQ Fletcher (University of Cape Town): <i>Low-cost atmospheric pressure hydrocracking enables sustainable synthetic aviation fuel</i>
10:40 – 11:10		Tea/Coffee
Session 11		11:10 – 13:00 Chair: D Moodley (SASOL)
11:10	KN06	<u>GJ Hutchings</u> (Cardiff University): <i>Selective oxidation of methane to oxygenates using gold catalysts in the presence of water</i>
11:40	OR35	<u>M Schörner</u> , A Al-Shaibani, R Franke, <u>M Haumann</u> (Friedrich-Alexander-Universität Erlangen-Nürnberg) <i>Continuous supported liquid phase (SLP) catalyzed gas-phase hydroformylation in a membrane reactor</i>
12:00	OR36	<u>MG Farpón</u> , W Henao, PN Plessow, E Andrés, R Arenal, C Marini, G Agostini, F Studt, <u>G Prieto</u> (Universitat Politècnica de València-Consejo Superior de Investigaciones Científicas) <i>Controlled de-ligation of Rh single-atom sites on SnO₂ for selective gas-phase ethylene hydroformylation with syngas</i>
12:20	OR37	<u>M Wolf</u> , N Raman, S Raseale, N Taccardi, N Fischer, M Haumann, P Wasserscheid (Karlsruhe Institute of Technology) <i>Role of the support on coking of Supported Catalytically Active Liquid Metal Solutions (SCALMS) during propane dehydrogenation</i>
12:40	OR38	<u>KC Musavuli</u> , N Engelbrecht, RC Everson, P Modisha, G Kolb, R Zapf, C Hofmann, D Bessarabov (North-West University) <i>Experimental evaluation of a coated foam catalytic reactor for the direct CO₂-to-methanol synthesis process</i>
13:00		Closing function
13:10 – 14:00		Lunch