

<b>19<sup>th</sup> Nordic Symposium on Catalysis, 6–8 June 2022, Espoo, Finland</b>			
<b>Time</b>	<b>Monday 6<sup>th</sup> June</b>		
<b>11.45-14.00</b>	<b>Registration open</b>		
<b>14.00-14.10</b>	<b>SYMPOSIUM OPENING, room Lumituuli</b>		
<b>14.10-14.10</b>	Juha Lehtonen, chair of the local organizing committee; Antti Vasara, president & CEO, VTT		
<b>14.10-15.00</b>	<b>Plenary 1, room Lumituuli</b> <b>Gabriele Centi, University of Messina</b> From thermal to reactive catalysis to move beyond fossil fuels Chair: Juha Lehtonen		
<b>15.00-15.30</b>	<b>Coffee break, room Sief</b>		
	<b>Catalysis for CCU, hydrogen &amp; P2X 1</b> Room Lumituuli Chair: Juha Lehtonen	<b>Environmental catalysis 1</b> Room Palaver Chair: Ulla Lassi	<b>Catalysis for fuels and chemicals from biomass and wastes 1</b> Room Takka Chair: Christian Hulteberg
<b>15.30-15.50</b>	<b>ORAL A-1</b> Henrik Grénman, Åbo Akademi University: Pure methane from CO <sub>2</sub> hydrogenation using a sorption enhanced process with catalyst/zeolite bifunctional materials	<b>ORAL B-1</b> Davide Ferri, Paul Scherrer Institut: Periodic operation of modern TWC to enhance methane conversion in stoichiometric natural gas engines	<b>Oral C-1</b> Tomas Cordero-Lanzac, University of Oslo: The individual effect of acid strength on benzene methylation kinetics
<b>15.50-16.10</b>	<b>ORAL A-2</b> Katarzyna Świrk, NTNU: Effect of basic sites in CO <sub>2</sub> reforming with excess of methane over Ni-containing ordered silicas	<b>ORAL B-2</b> Mika Huuhtanen, University of Oulu: Synthesis and characterization of catalysts for CO <sub>2</sub> methanation	<b>ORAL C-2</b> Juan Salvador Martinez-Espin, Haldor Topsøe A/S: Solvothermal stability of zeolitic Sn-Beta catalysts
<b>16.10-16.30</b>	<b>ORAL A-3</b> Lorenz Lindenthal, TU Wien: Growth and stability of in situ exsolved nanoparticles - controlling the surface morphology of rWGS catalysts	<b>ORAL B-3</b> Miren Agote Arán, Paul Scherrer Institut: Understanding the aging phenomena of Diesel oxidation catalysts	<b>ORAL C-3</b> David Kubička, University of Chemistry and Technology Prague: Copper catalysts for environmentally friendly hydrogenolysis of esters from renewable resources to alcohols
<b>16.30-16.50</b>	<b>ORAL A-4</b> Bruno Lacerda de Oliveira Campos, Karlsruhe Institute of Technology: Multi-Scale Modeling of Methanol and Direct Dimethyl Ether Synthesis from CO <sub>2</sub> -rich Syngas	<b>ORAL B-4</b> Oliver Kröcher, Paul Scherrer Institute: HCN Production from Formaldehyde during the Selective Catalytic Reduction of NO <sub>x</sub> with NH <sub>3</sub> over V <sub>2</sub> O <sub>5</sub> /WO <sub>3</sub> -TiO <sub>2</sub>	<b>ORAL C-4</b> Philipp Treu, Karlsruhe Institute for Technology: Oxidative C-C bond Cleavage of Vicinal Diols on Isolated Fe-sites in Fe/MFI catalysts
<b>16.50-17.00</b>			
<b>17.00-18.00</b>	<b>POSTER SESSION 1, room Capitolium</b>		
<b>18.00-19.30</b>	<b>WELCOME RECEPTION, room Capitolium</b>		

Time	Tuesday 7 <sup>th</sup> June		
8.50-9.00	<b>Berzelius Price ceremony, Room Lumituuli</b>		
9.00-9.50	<b>Plenary 2, Berzelius lecture, Room Lumituuli</b> Chair: Riikka Puurunen		
9.50-10.20	<b>Keynote lecture-Sweden</b> Room Lumituuli Sara Blomberg, Lund University: X-ray spectroscopy in the service of catalysis for renewable chemicals and fuels Chair: Riikka Puurunen		
10.20-10.45	<b>Coffee break, room Sief</b>		
	<b>Catalyst synthesis and characterization 1</b> Room Lumituuli Chair: Riikka Puurunen	<b>In situ and operando analysis 1</b> Room Palaver Chair: Evgeniy Redekop	<b>Computational catalysis 1</b> Room Takka Chair: Hilde Johnsen Venvik
10.45-11.05	<b>ORAL A-5</b> Lars Pilsgaard Hansen, Haldor Topsoe: Single-atom Pt promotion of Co-Mo-S hydrodesulfurization catalysts	<b>ORAL B-5</b> Martin Ek, Lund University: Visualizing surface redox dynamics in VOx/TiO <sub>2</sub> catalysts	<b>ORAL C-5</b> Minttu Kauppinen, Chalmers University of Technology: First-principles study on methanol synthesis from CO <sub>2</sub> over Pd In intermetallic sites
11.05-11.25	<b>ORAL A-6</b> Martin Høj, Technical University of Denmark: Molybdenum Loss from Iron Molybdate and Supported MoO <sub>3</sub> Catalysts	<b>ORAL B-6</b> Feng Ryan Wang, University College London: Dynamics of Cu-O bond breaking process	<b>ORAL C-6</b> Laura Laverdure, University of Jyväskylä: Glycerol electro-oxidation on gold: all about that base
11.25-11.45	<b>ORAL A-7</b> Stephan Pitter, Karlsruhe Institute of Technology: Scalable synthesis of Cu-based catalysts as a tool for accelerated process development	<b>ORAL B-7</b> Christopher Goodwin, Stockholm University: Observations in situ of Haber-Bosch catalysis over iron	<b>ORAL C-7</b> Marko Melander, University of Jyväskylä: Electrocatalysis from theory and simulations
11.45-13.00	<b>Lunch, room Sief</b>		

Time	Tuesday 7 <sup>th</sup> June continued		
13.00-13.30	<b>Keynote lecture-Denmark</b> , Room Lumituuli Jan Rossmeisl, University of Copenhagen: Predicting Electrocatalysis at the Atomic Scale Chair: Yongdan Li		
13.30-13.35			
	<b>Catalysis for fuels and chemicals from biomass and wastes 2</b> Room Lumituuli Chair: Yongdan Li	<b>In situ and operando analysis 2</b> Room Palaver Chair: Dmitry Murzin	<b>Catalyst synthesis and characterization 2</b> Room Takka Chair: Lars Pettersson
13.35-13.55	<b>ORAL A-8</b> Anders Riisager, Technical University of Denmark: Efficient Reductive Etherification of Furfural with Formic Acid over Pd-modified Aluminum Phosphate	<b>ORAL B-8</b> Ingeborg-Helene Svenum, SINTEF: Segregation dynamics of bimetallic surfaces in NAP-XPS	<b>ORAL C-8</b> Joakim Tafjord, Norwegian University of Science and Technology: Pyrolysis of iron alginate: Unravelling the pathway towards highly active Fe/C catalysts for the Fischer-Tropsch synthesis
13.55-14.15	<b>ORAL A-9</b> Christopher Sauer, Chalmers University of Technology: On-line FTIR-MS gas phase analysis of dimethylfuran conversion over zeolites for production of green aromatics	<b>ORAL B-9</b> Hongfei Ma, Norwegian University of Science and Technology: Kinetic Studies of Ethylene Oxychlorination over CuCl <sub>2</sub> /γ-Al <sub>2</sub> O <sub>3</sub> Catalyst	<b>ORAL C-9</b> Sebastian Prodingler, University of Oslo: Unlocking Synthesis-Structure-Activity Relationships in Cu-MOR for the Selective Oxidation of Methane
14.15-14.35	<b>ORAL A-10</b> Dominik Neukum, Karlsruhe Institute of Technology: Comparison of pure and bio-based HMF solution on the activity of noble metal based oxidation catalysts	<b>ORAL B-10</b> Wei Zhang, Norwegian University of Science and Technology: The optimization of promoters in Ethylene Oxychlorination Studied by Operando UV-vis-NIR Spectroscopy	<b>ORAL C-10</b> Aitor Arandia, Aalto University: Effect of atomic layer deposited zinc promoter on the activity of copper-on-zirconia catalysts in the carbon dioxide hydrogenation to methanol
14.35-14.55	<b>ORAL A-11</b> Elise Farah, KTH: Maximizing the olefin production from biomass-derived oxygenates using hierarchical HZSM-5 catalysts	<b>ORAL B-11</b> Anastasia Molokova, European Synchrotron Radiation Facility: Cu-CHA deNOx catalyst: Sulfur poisoning monitored by X-ray absorption spectroscopy	<b>ORAL C-11</b> Mehdi Mahmoodinia, Norges teknisk-naturvitenskapelige universitet NTNU: New Insights into the Direct Synthesis of Methylchlorosilanes: Role of Zn and Cu-enrichment on the Catalytic Performance of the MCS Process
14.55-15.30	<b>Coffee break, room Sief</b>		

Time	Tuesday 7 <sup>th</sup> June continued		
	<b><i>Catalysis for fuels and chemicals from biomass and wastes 3</i></b> Room Lumituuli Chair: Anker Degn Jensen	<b><i>In situ and operando analysis 3</i></b> Room Palaver Chair: Zhixin Yu	<b><i>Computational catalysis 2</i></b> Room Takka Chair: Karoliina Honkala
15.30-15.50	<b>ORAL A-12</b> Petter Tingelstad, Norwegian University of Science and Technology: Ex-situ catalytic upgrading of pyrolysis vapors through supported noble metal catalysts: an experimental and modeling study	<b>ORAL B-12</b> Sebastian Pfaff, Lund University: Polycrystalline Surfaces Enable Simultaneous Probing of all Surface Orientations	<b>ORAL C-12</b> Yingxin Feng, Chalmers University: Reaction kinetic of NH <sub>3</sub> -SCR over Cu-CHA from first principles
15.50-16.10	<b>ORAL A-13</b> Karoline Kvande, University of Oslo: Cu-loaded mordenites for the activation of ethane to ethene in a stepwise, cyclic conversion protocol	<b>ORAL B-13</b> Evgeniy Redekop, University of Oslo: Isomer-selective threshold photo-ionization mass-spectrometry (TPIMS) for transient kinetic experiments with zeolite-mediated catalytic reactions.	<b>ORAL C-13</b> Elisabeth Dietze, Chalmers University of Technology: Surface steps dominate the water formation on Pd(111) surfaces
16.10-16.30	<b>ORAL A-14</b> Christian Hulteberg, Lund University: Oxidative Depolymerization of Kraft Lignin to Aromatics over Bimetallic V-Cu/ZrO <sub>2</sub> Catalysts	<b>ORAL B-14</b> Stian Svelle, University of Oslo: Monitoring the coking and deactivation of zeolite catalyst H-beta with X-ray diffraction	<b>ORAL C-14</b> Aku Lempelto, University of Jyväskylä: CO <sub>2</sub> Reduction to Methanol at a Cu/Zn-ZrO <sub>2</sub> Interface via DFT Calculations
16.30-16.50	<b>ORAL A-15</b> Trine Marie Hartmann Dabros, Haldor Topsoe A/S: Catalytic hydrocracking of soybean oil to steam cracker naphtha feed	<b>ORAL B-15</b> Sabrina Gericke, Lund University: In situ reduction of Al <sub>2</sub> O <sub>3</sub> -supported and unsupported NiMo catalysts	<b>ORAL C-15</b> Akhilesh Nair, Technical University of Denmark: Efficiency of a trickle bed reactor in the continuous hydrogenation of pharmaceutical intermediates
16.50-17.00			
17.00-18.00	<b>POSTER SESSION 2, room Capitolium</b>		
18.00-19.30			
19.30-	<b>CONFERENCE DINNER, restaurant NJK, Helsinki</b>		

Time	Wednesday 8 <sup>th</sup> June		
09.00-09.50	<b>Plenary 3, room Lumituuli</b> <b>Bert Weckhuysen</b> , Utrecht University: Perspectives for the Catalytic Valorization of Plastic Waste, Biomass and CO <sub>2</sub> , Chair: Mika Huuhtanen		
09.50-10.20	<b>Keynote lecture-Norway, room Lumituuli</b> Zhixin Yu, University of Stavanger: CO <sub>2</sub> methanation on NiFe based catalysts: mechanistic and structured reactor study, Chair: Mika Huuhtanen		
10.20-10.45	<b>Coffee break, room Sief</b>		
	<b>Catalysis for fuels and chemicals from biomass and wastes 4</b> Room Lumituuli Chair: David Kubicka	<b>Catalyst synthesis and characterization 3</b> <b>Room Palaver</b> Chair: Mika Huuhtanen	<b>In situ and operando analysis 4</b> Room Takka Chair: Stian Svelle
10.45-11.05	<b>ORAL A-16</b> Anker Degn Jensen, DTU-Chemical Engineering: Enhancing bio-oil quality and energy recovery by atmospheric hydrodeoxygenation of wheat straw pyrolysis vapors	<b>ORAL B-16</b> Chiara Nannuzzi, University of Turin: The role of surface area in V-based/TiO <sub>2</sub> catalysts for low temperature NH <sub>3</sub> -SCR process for the abatement of NO <sub>x</sub>	<b>ORAL C-16</b> Dmitry Doronkin, Karlsruhe Institute of Technology: Operando high pressure XAS and QEXAFS-XRD to study bimetallic Pd-based catalysts for the direct H <sub>2</sub> O <sub>2</sub> synthesis
11.05-11.25	<b>ORAL A-17</b> Miha Grilc, National Institute of Chemistry: Bio-based adipic and mucconic acid synthesis by heterogenisation of Re-based catalyst	<b>ORAL B-17</b> Søren Kegnæs, Technical University of Denmark: Selective Catalysis using Metal Nanoparticles Confined in Porous Materials	<b>ORAL C-17</b> Davide Ferri, Paul Scherrer Institut: In situ ATR-IR spectroscopy of adsorption competition between dimethoxymethane, trioxane and water on zeolite beta
11.25-11.45	<b>ORAL A-18</b> Mark Martínez-Klimov, Åbo Akademi: Hydrodeoxygenation of Isoeugenol over Bimetallic Pt-Re Catalysts for Renewable Jet Fuel Production	<b>ORAL B-18</b> Yurou Li, Norwegian University of Science and Technology: Atomic-Level Regulation of Indium Oxide Catalyst for Acetylene Semi-Hydrogenation	<b>ORAL C-18</b> Enrico Tusini, Karlsruhe Institute of Technology: Operando X-Ray Absorption Spectroscopy of Bimetallic Catalysts for Methane Steam Reforming
11.45-12.05	<b>ORAL A-19</b> Sari Rautiainen, VTT Technical Research Centre of Finland: Unique pathway to platform chemicals - 2,5-furandicarboxylic acid and muconic acid from sugar diacids	<b>ORAL B-19</b> Mahtab Madani, Technical University of Denmark: Gas-phase Hydroformylation of 1-Butene using Monolithic Supported Liquid-Phase (SLP) Catalyst	<b>ORAL C-19</b> Felipe Lopes da Silva, University of Oulu/Lund University: An in-situ spectroscopic study of the surface reactions for industrial selective catalytic reduction (SCR) catalysts.
12.05-13.00	<b>Lunch, room Sief</b>		

Time	Wednesday 8 <sup>th</sup> June continued		
13.00-13.30	<b>Keynote lecture-Finland</b> , Room Lumituuli P. H. C. Camargo, University of Helsinki: Addressing activity and selectivity in plasmonic catalysis with designer nanoparticles, Chair: Henrik Grénman		
13.30-13.35			
	<b>Catalysis for fuels and chemicals from biomass and wastes 5</b> Room Lumituuli Chair: Henrik Grénman	<b>Catalyst synthesis and characterization 4</b> Room Palaver Chair: Matti Reinikainen	<b>Catalysis for CCU, hydrogen &amp; P2X 2</b> Room Takka Chair: Niko Heikkinen
13.35-13.55	<b>ORAL A-20</b> Oscar Ivanez, Norges teknisk-naturvitenskapelige universitet: Phosphorus deactivation on Co-based catalysts for Fischer-Tropsch	<b>ORAL B-20</b> Saeed Saedy, Delft University of Technology: The effect of cocatalyst particle size/loading on the photocatalytic activity of ALD-prepared Cu <sub>x</sub> O/TiO <sub>2</sub> photocatalysts	<b>ORAL C-20</b> Sebastian Wismann, Haldor Topsoe A/S: Electrified steam methane reforming
13.55-14.15	<b>ORAL A-21</b> Emma Verkama, Aalto University: Competitive HDO and HDN reactions in the hydrotreatment of fatty acid and amine mixtures	<b>ORAL B-21</b> Francesco Sandri, Università degli Studi di Padova: Direct synthesis of hydrogen peroxide: Synergistic effect of ion-exchange material and coordinating solvent on the catalyst selectivity	<b>ORAL C-21</b> Christian Hulteberg, Lund University: New Catalyst Development for the Water-Gas Shift Reaction
14.15-14.35	<b>ORAL A-22</b> Prem Kumar Seelam, University of Oulu: Copper nanoparticles encapsulated in a porous carbon as an efficient catalyst for the upgradation of $\gamma$ -Valerolactone to 1,4-Pentanediol by selective hydrogenation	<b>ORAL B-22</b> Marco Haumann, Friedrich-Alexander-Universität Erlangen-Nürnberg: Supported catalytically active liquid metal solutions (SCALMS) as novel materials for dynamic single atom catalysis – material development and high temperature applications	<b>ORAL C-22</b> Mika Christophliemk, University of Oulu: Porous alkali-activated composite materials for catalytic wet air oxidation
14.35-14.55	<b>ORAL A-23</b> Kishore Rajendran, Norwegian University of Science and Technology: Evaluating performance of hydrogenating metal promoter using biomass feedstock for hydrodeoxygenation reaction	<b>ORAL B-23</b> Lea Hohmann, KTH Royal Institute of Technology: Mechanistic Insights into Sulfur Poisoning during naphthalene decomposition on Ni (111) via X-ray Photoelectron Spectroscopy	<b>ORAL C-23</b> Brian Hansen, Technical University of Denmark: Close-Coupled SCR Concepts to Reduce Cold Start NO <sub>x</sub> emissions – The deactivating impact of CO, C <sub>3</sub> H <sub>6</sub> and SO <sub>2</sub> on Cu-CHA and V <sub>2</sub> O <sub>5</sub> -WO <sub>3</sub> /TiO <sub>2</sub> catalyst for NH <sub>3</sub> -SCR
14.55-15.00			
15.00-15.15	<b>CLOSING REMARKS</b> , room Lumituuli Mika Huuhtanen, chair of the Finnish Catalysis Society		