

Program

TECHSCALE Workshop

Beyond the Nanoscale



Liblice Castle

September, 14-17, 2026

14. 9. 2026		
18:00		Registration
20:00		Welcome Party
15. 9. 2026		
8:55		Opening
	Chair:	Michal Otyepka
9:00	PL1	Yury Gogotsi SCALABLE MXENE TECHNOLOGY
9:55	OP1	M. Eliášová, L.A.M. Carrascosa , M. Linková, T. Hrbek, M. Remzová TAILORING $\text{Ti}_3\text{C}_2\text{T}_x$ MXENE/ Cu_2O PHOTOCATHODES FOR HIGHLY SELECTIVE CO_2 REDUCTION TO ETHANOL
10:15	OP2	M. Wagas MXENE BASED QDS FOR SOLAR DRIVEN HYDROGEN
10:35	OP3	W. Han, Z. Jia, K.L. Yeung ENVIRONMENTAL CATALYSTS DERIVED FROM MOLECULAR STRUCTURE UNITS
10:55		Break – Poster Session
	Chair:	Ondřej Sedláček
11:20	OP4	R. Ahmad , Š. Kment SURFACE AND INTERFACE ENGINEERING OF LEAD-FREE PEROVSKITE NANOCRYSTALS FOR SOLAR FUEL GENERATION
11:40	OP5	A. Jančík-Prochazková FROM SINGLE ATOMS TO MOTION: ATOMIC-LEVEL NANOARCHITECTONICS OF FUNCTIONAL NANOROBOTS
12:00	OP6	S. Venkateswarlu , R.V. Jagadeesh, A. Bakandritsos, R. Zbořil SINGLE-ATOM CATALYSTS INTEGRATED INTO MEDIUM-ENTROPY ALLOYS FOR ENHANCED ELECTROCHEMICAL HYDROGEN EVOLUTION
12:30		Lunch
	Chair:	Michal Mazur
14:00	PL2	Gianfranco Pacchioni REVISITING THE COMPUTATIONAL HYDROGEN MODEL FOR SINGLE-ATOM CATALYSTS
14:55	OP7	S. Kolesár , M. Mazur THERMAL STABILITY OF MONO- AND BIMETALLIC SPECIES ON 3D AND NANOSPONGE MFI ZEOLITES: AN IN-SITU HEATING STEM STUDY
15:15	OP8	A. Cheruvathoor Poulouse , G. Zoppellaro, A. Bakandritsos, R. Zbořil SYNERGISTIC RHODIUM SINGLE ATOMS AND CLUSTERS ON A FUNCTIONAL SUPPORT FOR ETHANOL CONVERSION INTO LIQUID FUELS
15:35	OP9	M. Álvarez Izaguirre , A. García de Fernando, D.P. Serrano, P. Pizarro HIGH-PRESSURE ETHYLENE OLIGOMERIZATION OVER Ni-ZEOLITES: CONTROLLING SELECTIVITY TOWARD JET FUEL RANGE HYDROCARBONS

15:55	OP10	F. Krakl , T. Dudek, B. Gil, M. Mazur METAL ANCHORING ON LAYERED ZEOLITES: TOWARD STABLE AND ACCESSIBLE SUB-NANOMETRIC SPECIES
16:15		Break – Poster Session
	<i>Chair:</i>	<i>Jan Veselý</i>
16:40	OP11	M. Sajad , F. Loi, S. Swathilakshmi, Z. Gecgil, D. Teschner, A. Efimienko, M. Gorgoi, M. Haevecker, E. Prado, A. Kleibert, J.A. van Bokhoven, S. Vajda, J.E. Olszowka UNDERSTANDING STABILITY AND REACTIVITY IN Ni-BASED CATALYSTS FOR DRY METHANE REFORMING
17:00	OP12	Š. Kment , S. Rej, M. Otyepka, R. Zbořil PLASMONIC HYBRID NANOSTRUCTURES IN PHOTOCATALYSIS
17:20	OP13	O. Sedláček SYNTHESIS OF SELF-ASSEMBLED NANOMATERIALS BY POLYMERIZATION-INDUCED SELF-ASSEMBLY
17:40	OP14	P. Velayudham , P. Eliášová ENHANCED HYDROGEN PRODUCTION IN PHOTOELECTROCATALYTIC WATER SPLITTING USING MXENE-MODIFIED Cu ₂ O PHOTOCATHODES
18:00	OP15	P. Čechová , M. Šrejber, M. Paloncýová, M. Otyepka MOLECULAR DYNAMICS MODELS OF CELL SURFACE
18:20	OP16	O. Veselý FORMATION OF UTL DOUBLE-LAYER: THE FIRST 2D ZEOLITE OBTAINED BY BOTH TOP-DOWN AND BOTTOM-UP SYNTHESIS
20:00		Barbecue (if weather allows)
16. 9. 2026		
	<i>Chair:</i>	<i>Jan Přečh</i>
9:00	PL3	Svetlana Mintova SYNTHESIS OF PENTASIL ZEOLITES USING ADDITIVES FOR CATALYSIS
9:55	OP17	O. Bortnovský , J. Valenta, M. Kubů HOLLOW ZEOLITE AGGLOMERATES
10:15	OP18	A. Laštovičková , J. Čejka, M. Mazur ANCHORING METAL NANOPARTICLES WITHIN LAYERED ZEOLITE PRECURSORS THROUGH SWELLING-DRIVEN INTERCALATION
10:35	OP19	P. Chapel TUNING THE FLEXIBILITY OF THE MWW ZEOLITE VIA THE INCORPORATION OF DIFFERENT HETEROATOMS
10:55		Break – Poster Session
	<i>Chair:</i>	<i>Jan Neuman</i>
11:20	OP20	S. Natarajan , M. Pumera FLUORESCENT MICROROBOTS FOR BIOMEDICAL AND ENVIRONMENTAL REMEDIATION APPLICATIONS

11:40	OP21	M. Paloncýová , P. Čechová, P. Kührová, A. Chadalíková, M. Šrejber, M. Otyepka INSIGHT INTO LIPID NANOPARTICLE STRUCTURE AND FUNCTION FROM THE PERSPECTIVE OF MOLECULAR DYNAMICS SIMULATIONS
12:00	OP22	O. Baaloudj , J. Filip STRUCTURAL CHARACTERIZATION OF CuBi_2O_4 USING THE MAXIMUM-ENTROPY METHOD TECHNIQUE. BEYOND THE RIETVELD METHOD
12:30		Lunch
<i>Chair:</i>		<i>Radek Zbořil</i>
14:00	PL4	Christopher W. Jones DIRECT AIR CAPTURE OF CO_2 : CHEMISTRY & ENGINEERING COMBINE FOR CLIMATE STABILIZATION
14:55	OP23	S. Chirra , R. Bulánek DEVELOP ADVANCED FUNCTIONAL MATERIALS, SPECIFICALLY QUINONE-BASED MATERIALS, AND METAL-ORGANIC FRAMEWORKS (MOFS) FOR EFFICIENT CARBON DIOXIDE (CO_2) REDUCTION UNDER VISIBLE LIGHT
15:15	OP24	N. Tsunoji ECONOMIC SYNTHESIS OF AMINE GRAFTED CO_2 ADSORBENT FOR DIRECT AIR CAPTURE
15:35	OP25	M. Mahato HIGHLY SELECTIVE CO_2 CAPTURE AT ATMOSPHERIC PRESSURE? ACHIEVING IT WITH 4H-PYRAN-FUNCTIONALIZED CTFS
15:55		Break – Poster Session
<i>Chair:</i>		<i>Roman Bulánek</i>
16:20	KL1	Jan Neuman BEYOND THE NANOSCALE WITH AFM-in-SEM: CORRELATIVE CHARACTERIZATION OF 2D MATERIALS, BATTERIES, AND SEMICONDUCTOR DEVICES
16:50	OP26	S.K. Sachan , A. Bakandritsos SINGLE-ATOM COPPER SITES ON UiO-66-NH_2 AS MECHANISTICALLY DEFINED LEWIS ACID CATALYSTS FOR CO_2 FIXATION AND MULTICOMPONENT SYNTHESIS
17:10	OP27	J. Přech , K. Stiborová, J. Wörnå, D. Murzin MECHANISM OF COMPETING REACTIONS OVER Zr-BETA CATALYSTS
17:30	OP28	L. Zdražil HARNESSING THE LIGHT-DRIVEN POTENTIAL OF CARBON DOTS IN ARTIFICIAL PHOTOSYNTHESIS
17:50	OP29	S. Samantha , A. Manal, M. Shamzhy, R. Srivastava ELUCIDATING THE REACTION MECHANISM OF SELECTIVE P-XYLENE CONVERSION FROM POLYETHYLENE TEREPHTHALATE OVER CUMNALOX CATALYST USING IN SITU FTIR SPECTROSCOPY
18:10		<i>Closing remarks</i>
19:30		Farewell Dinner
17. 9. 2026		
9:00		Departure

POSTERS	
Po01	D. Panáček , R. Zbořil SILVER SINGLE-ATOM ENHANCED GRAPHENE ACID AND ITS MEDICAL USE
Po02	P. Błorński , J. Navratil, M. Otyepka INTERPRETABLE MACHINE LEARNING FOR DESIGNING ATOMIC-SCALE MAGNETS
Po03	R. Langer THEORETICAL MODELING OF CN-BASED SUPPORTS FOR SINGLE-ATOM CATALYSIS
Po04	M. Langer FROM LOCALIZED EXCITED STATES TO PHOTOCATALYTIC ACTIVE SITES IN FLUOROPHORE-RICH CARBON DOTS
Po05	M.A. Nalepa , M. Jendrišák, V. Hrubý, D. Panáček, P. Jakubec, M. Otyepka SINGLE-ATOM-ENHANCED INKJET-PRINTED SENSORS ADVANCE ELECTROCHEMICAL SENSING
Po06	T. Malina , D. Panáček, A.S. Fung, V. Hrubý, R. Li, B. Fadeel, R. Zbořil CATALYTIC SINGLE-ATOM CU NANOMEDICINE TRIGGERS MULTIMODAL CANCER CELL DEATH BEYOND CUPROPTOSIS
Po07	V. Hrubý , D. Manna, R. Lo, P. Hobza AMBIPHILIC HYDROGEN IN TRISUBSTITUTED SILANES: SUBSTITUENT- DRIVEN POLARITY FLIP CONFIRMED BY NMR
Po08	A. Maroto , M. Álvarez, D.P. Serrano, M. Ventura, P. Pizarro ROLE OF H ₂ IN THE CONVERSION OF 2-BUTANOL AND 2,3-BUTANEDIOL TO JET-FUEL PRECURSORS OVER Cu/H-ZSM-5
Po09	J. Halánek , T. Volný, R. Bulánek, O. Bludský, M. Rubeš HYDROCARBON MASS-TRANSPORT IN DEFECT-RICH PURE SILICA ZEOLITES
Po10	K. Patel , O. Sedláček POLYOXAZINES IN THE MAKING OF SMART PICKERING EMULSION FOR INTERFACIAL CATALYSIS
Po11	S. Salamatgharamaleki , O. Sedláček THERMORESPONSIVE COMPARTMENTALIZED POLY(2-OXAZOLINE) NANOREACTORS VIA CATIONIC RING-OPENING POLYMERIZATION-INDUCED SELF-ASSEMBLY (CROPISA)
Po12	V. Příbyl , M. Kubů, M. Shamzhy, M. Opanasenko DIRECT SYNTHESIS OF -EWT ZEOLITE
Po13	P. Švec , O. Sedláček LIGHT-RESPONSIVE AMPHIPHILIC POLY(2-OXAZOLINE)S FOR EMULSION CATALYSIS
Po14	M. Franc , J. Veselý SYNTHESIS OF IMMOBILIZED CHIRAL PHOSPHORIC ACID DERIVED FROM BINOL
Po15	D. Inoue , N. Tsunoji, K. Betsui, S. Ogo, E. Tsuji, N. Katada CARBON DIOXIDE CAPTURE AND ELECTRIC FIELD-DRIVEN HYDROGENATION INTO CARBON MONOXIDE AT LOW TEMPERATURE USING TITANIUM-ZIRCONIUM COMPOSITE OXIDE AS CATALYST SUPPORT
Po16	T. Volný , F. Dalena, S. Weckerle, S. Mintova SPECTROSCOPIC SIGNATURES OF FRAMEWORK FLEXIBILITY IN ZEOLITES STRUCTURES

Po17	M. Rubeš ADVANCES IN SELECTIVE OXIDATIVE DEHYDROGENATION OF LIGHT HYDROCARBONS OVER BORON-CONTAINING CATALYSTS
Po18	S. Weckerle UNDERSTANDING OF THE SILIC PROPERTIES OF MWW
Po19	F. Rahimi PHOTOCATALYTIC CO ₂ REDUCTION BEYOND CO BY METAL-FREE CATALYSTS: ACTIVE SITE MODIFICATIONS AND IMPACT IN CATALYSIS
Po21	V. Sada MOF-DERIVED Fe-CONTAINING PtFeAl ALLOY/CNTS WITH SINGLE-ATOM SITES FOR HIGH-CURRENT HYDROGEN EVOLUTION
Po22	S. Bhattacharjee IMPACT OF SINGLE-ATOM CATALYSTS ON THE ELECTROCATALYTIC CONVERSION OF GLYCEROL INTO VALUE-ADDED PRODUCTS
Po23	A. Olšovská , J. Veselý, J. Čejka, M. Mazur, M. Kamlar ADVANCING ALLYLATION OF HETEROCYCLES WITH ZEOLITE-STABILIZED PD NANOCATALYSTS
Po24	K. Stiborová , P. Eliášová, J. Čejka SIMPLE AND H ₂ -FREE SYNTHESIS OF VANILLYL BUTYL ETHER USING ZEOLITES AS HIGHLY EFFECTIVE CATALYSTS
Po25	M. Živný , M. Nigríni, J. Veselý DEVELOPMENT OF NEW ENANTIOSELECTIVE REACTIONS USING BRØNSTED ACID CATALYSIS

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