

Contents

Preface (K. Bouzek)	7
General information	8
Part I	
FINAL PROGRAMME	
Final Programme	12
Part II	
PLENARY LECTURES (PL01 – PL03)	
PL01 Fuel cell and hydrogen; a compelling value proposition for zero emission heavy duty transportation Oben Uluc	18
PL02 Structured Financing and the Development of Hydrogen Supply Chains André Hutzli	19
PL03 New study program and e-learning tools for education in hydrogen technologies Robert Steinberger-Wilckens, Olaf Jedicke	20
Part III	
KEYNOTE LECTURE (KL01)	
KL01 Low Pt content PEM FC catalysts – from fundamental science to applications Vladimír Matolín	23
Part IV	
LECTURES (L01 – L24)	
L01 Recent progress and vision of hydrogen technologies in the Czech Republic Karin Stehlík	26
L02 Challenges in hydrogen mobility Jiří Hájek	27
L03 Saxony – a model region for large-scale green hydrogen use cases Lukas Rohleder	28
L04 R&D in hydrogen storage technologies – new program announced by NCBR in Poland Maciej Martyniuk	29
L06 Optimization of hot-press process for PEM Fuel Cells MEA preparation Jakub Mališ	30
L07 Permeability of gas diffusion layer – its influence on gas flow uniformity in PEM type fuel cell Monika Drakselová	31
L08 Virtual porous electrode design - a simple approach Deepjyoti Borah	32
L09 Representative determination of nanoparticle size distribution on gas-diffusion electrodes Martin Prokop	33
L10 Non-platinum amorphous $\text{Fe}_{60}\text{Co}_{20}\text{Si}_{10}\text{B}_{10}$ cathode catalyst combined with anion selective binder for alkaline water electrolysis Martin Ďurovič	34

L11	Catalyst coated membrane for a zero-gap alkaline water electrolyzer Jaromír Hnát	35
L12	Design of Zero-Gap Alkaline Water Electrolyzer Roman Kodým	36
L13	Bio-hydrogen Production by Combination of Dark and Photo Fermentation Shu-Yii WU	37
L14	Lithium-Amide Systems for Hydrogen Storage: cation/anion substitution Luisa Fernández Albanesi	38
L15	A case study of the potential implementation of a Hydrogen Economy in Northern Norway Mohamad Mustafa	39
L16	Future European Fuel Cell Technology: Fit for Automatic Manufacturing and Assembly Martin Biák	40
L17	Advanced Control of Hydrogen-Based Microgrids with Hybrid Energy Storage System using Model Predictive Control Garcia-Torres	41
L18	A clean switch to clean energy - fuel cell hybrids in Stationary applications Rohit Prasad	42
L19	Hydrogen Use in a Compression Ignition Engine Ivan Bortel.....	43
L20	Advances in solid oxide cells in the Institute of Power Engineering – new designs, fabrication techniques and applications Marek Skrzypkiewicz	44
L21	Synthesis of Ruddlesden-Popper oxides, $\text{La}_{n+1}\text{Ni}_{n(1-x)}\text{Co}_{nx}\text{O}_{3n+1+\delta}$ ($n=1, 2, 3$; $x = 0.0, 0.1, 0.2$) and their use as a cathode in the solid oxide fuel cells Jing-Chie Lin	45
L22	High temperature electrochemical reactors for energy storage Michal Carda	46
L23	The reformer steam-iron cycle for high purity hydrogen production Robert Zacharias	47
L24	Possibilities of hydrogen production via thermal plasma Michal Jeremiáš	48

Part V

POSTER PRESENTATIONS (P01 – P16)

P01	Specialized education in fuel cell and hydrogen technologies at University of Chemistry and Technology, Prague Martin Páidar	51
P02	Pre-normative Research for Safe Use of Liquid Hydrogen Olaf Jedicke	52
P03	NET-Tools, Digital Platform to provide e-Learning and e-Science related to Fuel Cells and Hydrogen Technology for Training and Education Olaf Jedicke	53
P04	New application of alkaline water electrolysis Lukas Polak	54
P05	The numerical simulation of catalysis using fuel by stream reformer system Jenn-Kun Kuo	55
P06	Performance evaluation of proton conducting oxide fuel cell with 1-D modified cathode Sangho Park	56

P07	Catalytic nanoparticle synthesis by spark discharge Tomáš Němec	57
P08	Large Scale Hydrogen Production and Electricity by High Temperature Nuclear Power Station with Pebble Bed Reactor Urban Cleve	58
P09	Efficiency of on- site hydrogen production from hydrocarbons as compared to electrolysis of water Mohamed Mustafa	59
P10	Thermodynamical and operational aspects of SOEC in co-generation Karin Stehlík	60
P11	Structural ordering of mixed-phase fct/fcc FePt nanoparticles with minimal particle size compromise for oxygen reduction reaction Robin Sandström	61
P12	Hydrogen Metrology: Hydrogen quality specification for fuel cell vehicles Andrés Rojo	62
P13	Future European Fuel Cell Technology: Fit for Automatic Manufacturing and Assembly Martin Biák	63
P14	Hydrogen car model David Žahour	64
P15	The influence of mechanical milling parameters and catalyst distribution on thermal decomposition of MgH_2 Tijana Pantić	65
P16	Some aspects of hydrogen utilization for supplying 10kW PEMFC stack designed as part of hybrid power sources for motorglider Andrzej Raźniak	66
Part VI		
AUTHOR INDEX & GENERAL PROGRAMME SCHEME		
	Author index	69
	General programme scheme	70