2-A1: Performance of Heat Pump and Hvacr Systems
Room: M1

Chairs: XS Zhang, Fabio Polonara

08:30-08:50 **2-A1-1** **ANALYSIS OF A NEW ABSORPTION REFRIGERATION CYCLE DRIVEN BY MULTI HEAT SOURCES**
Daliang Hong, Guangming Chen, Liming Tang, Yijian He, Xiaona Yan, Shunrong Ling

08:50-09:10 **2-A1-2** **INVESTIGATION ON THERMODYNAMIC PERFORMANCE OF A DOUBLE-ACTING TRAVELING-WAVE THERMOACOUSTIC HEAT PUMP FOR HIGH-TEMPERATURE RANGE**
Huan Tong, Ercang Luo

09:10-09:30 **2-A1-3** **GROUND HEAT EXCHANGER PREDICTIVE MODEL FOR THE CONTROL OF HYBRID GROUND SOURCE HEAT PUMP SYSTEMS**
Wenjie Gang, Jinbo Wang

09:30-09:50 **2-A1-4** **THERMODYNAMIC ANALYSIS ON A NEW TYPE OF SOLAR AIR CONDITIONING SYSTEM**
Xingjuan Zhang, Qingyuan Bai, Bojie Song, Chunxin Yang

2-A2: thermoacoustic Generator and Appliations
Room: M1

Chairs: F. Wahllin, WL Luan

10:20-10:50 **2-A2-1** **SIMULATIONS AND EXPERIMENTS ON THERMOELECTRIC POWER GENERATION OF P-TYPE CA3CO4O9 AND N-TYPE CAMNO3 MODULE**
Tosawat Seetawan, Kunchit Singsoog, Suriya Srichai, Chanchana Tanachyanont, Chesta Ruttanapun

10:50-11:10 **2-A2-2** **THEORETICAL AND EXPERIMENTAL INVESTIGATION ON THE UNIQUE OUTPUT CHARACTERISTICS OF THERMOACOUSTIC HEAT ENGINE UNDER CONSTANT HEATING TEMPERATURE**
Liming Zhang, Zhanghua Wu, Ercang Luo, Man Man

11:10-11:30 **2-A2-3** **NUMERICAL SIMULATION AND EXPERIMENTAL INVESTIGATION OF A GAS-LIQUID, DOUBLE-ACTING TRAVELING-WAVE THERMOACOUSTIC HEAT ENGINE**
Donghui Li, Ercang Luo, Limin Zhang, Zhanghua Wu, Yanyan Chen

11:30-11:50 **2-A2-4** **A DOUBLE-ACTING THERMOACOUSTIC CRYOCOOLER FOR HTS ELECTRIC POWER GRID**
Jianying Hu, Ercang Luo, Liming Zhang, Xiaotao Luo, Wei Dai

11:50-12:10 **2-A2-5** **ANALYSIS OF A NOVEL COUPLING CONFIGURATION FOR THERMOACOUSTICALLY DRIVEN REFRIGERATION: LIQUID ACOUSTIC PRESSURE AMPLIFIER**
Ke Tang, Tian Lei, Tao Jin, Kang Li, Shengchao Huang

2-A3: Fuel Cells Modeling and Applications (2)
Room: M1

Chairs: Meng Ni, Tariq Shamim

13:10-13:30 **2-A3-1** **ENABLING HIGH-CONCENTRATED FUEL OPERATION OF FUEL CELLS WITH MICROFLUIDIC PRINCIPLES**
Hao Zhang, Jin Xuan, Hong Xu, Dennis Y.C. Leung, Li Zhang

13:30-13:50 **2-A3-2** **NUMERICAL INVESTIGATION OF THE COUPLED WATER AND THERMAL MANAGEMENT IN PEM FUEL CELL**
Tao-Feng Cao, Hong Lin, Li Chen, Ya-Ling He, Wen-Quan Tao

13:50-14:10 **2-A3-3** **INVESTIGATION OF THE EFFECT OF MULTIDIMENSIONALITY IN PEM FUEL CELLS**
Abhishek Raj, Tariq Shamim

14:10-14:30 **2-A3-4** **DYNAMIC LIQUID WATER DISTRIBUTION IN AN OPERATING PEM FUEL CELL WITH A LONG SERPENTINE FLOW CHANNEL**
Xianguo Li, J. Park, D. Tranb, T. Abdel-Baset, D.S. Husseyc, D.L. Jacobsonc , M. Arif

14:30-14:50 **2-A3-5** **REVIEW OF MICROSTRUCTURE MODELING IN SOFC ELECTRODES**
Maria Navasa, Jinliang Yuan, Bengt Sundén

14:50-15:10 **2-A3-6** **REVIEW OF CARBON DEPOSITION IN SOLID OXIDE FUEL CELLS**
Min Zeng, Jinliang Yuan, Bengt Sundén, Qiuwang Wang

2-A4: torrefaction and Syngas Synthesis
Room: M1

Chairs: Wei-Hsin Chen, Khanh-Quang Tran

15:30-15:50 2-A4-1 **PROPERTY VARIATION OF THREE AGRICULTURAL WASTES FROM TORREFACTION**
Wei-Hsin Chen, Chien-Chang Wang, Chen-I Hung, Chi-Ming Tsai

15:50-16:10 2-A4-2 **DYNAMIC SIMULATION OF TORREFACTION**
Elena Tomás-Aparicio, Hailong Li, Erik Dahlquist

16:10-16:30 2-A4-3 **STUMP TORREFACTION FOR ENERGY APPLICATION**
Khanh-Quang Tran, Xun Luo, Gulaim Seisenbaeva

16:30-16:50 2-A4-4 **EFFECT OF CARBON DIOXIDE ON DIRECT DME SYNTHESIS UNDER HIGH SPACE VELOCITY**
Wei-Hsin Chen, Bo-Jhih Lin, How-Ming Lee, Men-Han Huang

16:50-17:10 2-A4-5 **A NUMERICAL STUDY ON GASIFICATION PHENOMENA OF COAL AND TORREFIED BIOMASS**
Jhih-Rong Chen, Wei-Hsin Chen, Chen-I Hung

2-B1: Treatment Technologies of Biomass and Solid Wastes for Biofuel Production
Room: M2

Chairs: TJ Wang, KJE Chua

08:30-08:50 2-B1-1 **OPTIMIZATION OF HYDROTHERMAL TREATMENT PARAMETERS TO PRODUCE CHLORINE-FREE ALTERNATIVE SOLID FUEL FROM PLASTIC-CONTAINED MUNICIPAL SOLID WASTE**
Pandji Prawisudha, Kunio Yoshikawa

08:50-09:10 2-B1-2 **ULTRASONIC PRETREATMENT AND FRACTIONATION OF WHEAT-STRAW AT LOW AND HIGH FREQUENCIES**
Madeleine Bussemaker, Dongke Zhang

09:10-09:30 2-B1-3 **EFFECT OF CONVERSION OF BIOMASS IN KOREAN MSW FOR SOLID FUEL PRODUCTION EMPLOYING HYDROTHERMAL TREATMENT**
Daegi Kim, Pandji Prawisudha, Kunio Yoshikawa

09:30-09:50 2-B1-4 **SOLID FUEL PRODUCTION FROM SEWAGE SLUDGE BY EMPLOYING STEAM EXPLOSION**
Peitao Zhao, Shifu Ge, Kunio Yoshikawa

09:50-10:10 2-B1-5 **PRODUCTION OF CYCLOHEXANE FROM LIGNIN DEGRADATION COMPOUNDS OVER NI/ZRO2-SIO2 CATALYSTS**
Zhang Xinghua, Wang Tiejun, Ma Longlong, Zhang Qi, Huang Xiaoming

2-B2: Solar Energy Applications
Room: M2

Chairs: Kok Seng Ong, Yanjun Dai

10:30-10:50 2-B2-1 **EXPERIMENTAL STUDY OF THE PERFORMANCE FOR A NEW KIND OF FLAT PLATE SOLAR WATER HEATER BY USING MICRO-HEAT PIPE ARRAY**
Liang Yao, Wei Wang, Yaohua Zhao, Xinyue Wang

10:50-11:10 2-B2-2 **OVERNIGHT HEAT LOSS IN NATURAL CONVECTION HEAT PIPE SOLAR WATER HEATER**
K. S. Ong, K. Y. Yong , W. L. Tong

11:10-11:30 2-B2-3 **EXPERIMENTAL INVESTIGATION OF A SOLAR POWERED AIR-CONDITIONING SYSTEM EMPLOYING A READIANT COOLING SYSTEM**
Yin Yaling, Wang Ruzhu, Zhai Xiaoqiang, Li Yue, Wang Xiaolin

11:30-11:50 2-B2-4 **PREPARATION OF LEAD-FREE GLASS FRIT POWDER FOR CRYSTALLINE SILICON SOLAR CELLS**
Quande Che, Hongxing Yang, Lin Lu, Yuanhao Wang

11:50-12:10 2-B2-5 **BIMETALLIC TRANSITION OXIDE NANOTUBES PHOTOELECTRODE FOR THE PRODUCTION OF HYDROGEN FROM WATER**
Warapong Krengvirat, Srimala Sreekantan, Ahmad-Fauzi M. N., Nobuaki Negishi, Go Kawamura, Hiroyuki Muto, Atsunori Matsuda

2-B3: Hydrogen and Biooil Production
Room: M2

Chairs: Chungen Yin, E. Nehrenheim

13:10-13:30 2-B3-1 **THE ROLE OF RENEWABLE ENERGY DRIVEN WATER ELECTROLYSIS IN DISTRIBUTED ENERGY**
Kai Zeng, Dongke Zhang

13:30-13:50 2-B3-2 **PYROLYSIS INVESTIGATION FOR BIO-OIL PRODUCTION FROM VARIOUS BIOMASS FEEDSTOCKS IN THAILAND**
Suneerat Pipatmanomai, Dongwook Shin

13:50-14:10 2-B3-3 **EXTRACTION OF OIL FROM MORINGA OLEIFERA SEEDS: EFFECTS OF SOLVENTS AND EXTRACTION METHODS**
Suwei Zhao, Dongke Zhang

14:10-14:30 2-B3-4 **EFFECT OF H2/CO RATIO ON MICROSTRUCTURE AND CATALYTIC PERFORMANCE OF PRECIPITATED IRON-BASED CATALYST FOR FISCHER-TROPSCH SYNTHESIS**
Mingyue Ding, Yong Yang, Yongwang Li, Tiejun Wang, Longlong Ma, Chuangzhi Wu

14:30-14:50 2-B3-5 **PHOTOCATALYTIC HYDROGEN PRODUCTION OVER PT-TIO2 NANOSHEETS WITH REACTIVE FACETS**
Michael K.H. Leung, Bin Wang, Xiao-Ying Lu

14:50-15:10 2-B3-6 **HYDROGEN AND METHANE GENERATION FROM LARGE HYDRAULIC PLANT: THERMO-ECONOMIC MULTI-LEVEL TIME-DEPENDENT OPTIMIZATION**
Massimo Rivarolo, Loredana Magistri, Aristide Fausto Massardo

2-B4: New Turbines for Renewable Resouces
Room: M2

Chairs: SD Tu, Chungen YIN

15:30-15:50 2-B4-1 **EARLY DEVELOPMENT OF AN ENERGY RECOVERY WIND TURBINE GENERATOR FOR EXHAUST AIR SYSTEM**
Wen Tong Chong, Ahmad Fazlizan, Sin Chew Poh, Sook Yee Yip, Wooi Ping Hew

15:50-16:10 2-B4-2 **THE DESIGN, SIMULATION AND TESTING OF AN URBAN VERTICAL AXIS WIND TURBINE WITH THE OMNI-DIRECTION-GUIDE-VANE**
Wen Tong Chong, Ahmad Fazlizan, Sin Chew Poh, Kok Chen Pan

16:10-16:30 2-B4-3 **ON THE EFFECTS OF A SKEWED FLOW ON THE PERFORMANCE OF A THREE-BLADED H-DARRIEUS TURBINE**
Alessandro Bianchini, Lorenzo Ferrari, Sandro Magnani

16:30-16:50 2-B4-4 **INFLUENCE OF WAVE ON THE AERODYNAMICS OF FLOATING WIND TURBINES**
Ke Yang, Qiang Liu, Xiaolu Zhao, Jianzhong Xu

16:50-17:10 2-B4-5 **INFLUENCE OF PRESET ANGLES OF ATTACK ON HYDRO-DYNAMIC PERFORMANCE OF A VERTICAL-AXIS TIDAL-CURRENT TURBINE**
Yang Ran-Sheng, Liu Yan, Zhao Peng-Fei, Zhao Guang, Su Xiao-Hui

2-C1: Climate Change and Low Carbon Development
Room: M3

Chairs: Peter Stigson, Roberto F. Aguilera

08:30-08:50 2-C1-1 **THE ROLE OF NATURAL GAS IN A LOW CARBON ASIA PACIFIC**
Roberto F. Aguilera, Jinsuo Zhang

08:50-09:10 2-C1-2 **GLOBAL ENERGY STRATEGY FOR MEETING THE 2OC TARGET UNDER A LOW NUCLEAR GROWTH SCENARIO**
Takayuki Takeshita, Lars Raahauge

09:10-09:30 2-C1-3 **WHO TAKES THE LEAD IN THE CURRENT CCS&U RACE?**
Jens Hetland

09:30-09:50 2-C1-4 **THE EFFICIENCY ANALYSIS OF THE EUROPEAN CO2 FUTURES MARKET**
Baojun Tang, Cheng Shen

09:50-10:10 2-C1-5 **PATHWAY TO SUSTAINABLE BUILT ENVIRONMENT: AN EXPLORATION OF THE USE OF EMISSIONS TRADING FOR THE BUILDING SECTOR IN ASIA**
Patrick T. I. Lam, Edwin H.W. Chan, Ann T.W. Yu, Wynn C.N. Cam, Jack S. Yu

2-C2: Demand Scenarios and Managment
Room: M3

Chairs: G P Hammond, XM Ou

10:30-10:50 2-C2-1 **METERING COST MINIMISATION OF CDM ENERGY EFFICIENCY LIGHTING PROJECTS**
Xianming Ye, Xiaohua Xia, Jiangfeng Zhang

10:50-11:10 2-C2-2 **ENERGY DEMAND MODEL DESIGN FOR FORECASTING ELECTRICITY CONSUMPTION AND SIMULATING DEMAND RESPONSE SCENARIOS IN SWEDEN**
Javier Campillo, Fredrik Wallin, Iana Vassileva, Daniel Torstensson

Day 2 / July 7

11:10-11:30	2-C2-3	**LARGE SCALE ENERGY INTERVENTION SCENARIOS AS A METHOD INVESTIGATING DEMAND RESPONSE POTENTIALS** *Daniel Torstensson, Fredrik Wallin, Iana Vassileva, Javier Campillo*
11:30-11:50	2-C2-4	**AN INTEGRATED MODEL FOR LONG-TERM GENERATION PLANNING TOWARD FUTURE SMART ELECTRICITY SYSTEMS** *Qi Zhang, Tetsuo Tezuka, Benjamin Mclellan, Keiichi Ishihara*
11:50-12:10	2-C2-5	**MONETARY ENVIRONMENTAL DAMAGE EFFECT OF CARBON MITIGATION TECHNOLOGIES: A PROVINCIAL STUDY FOR CEMENT INDUSTRY** *Xi Yang, Fei Teng*

2-C3: Energy and Climate Change Mitigation Modeling
Room: M3

Chairs: Y. Fan, L. Feng

13:10-13:30	2-C3-1	**RESEARCH OF THE EMISSION REDUCTION MODEL TO REALIZE THE REDUCTION TARGET OF CO2 PER UNIT OF GDP: THE CASE OF JIANGSU PROVINCE** *Ting Yue, Ruyin Long, Hong Chen, Xin Zhao*
13:30-13:50	2-C3-2	**HOW DOES INDIVIDUAL LOW-CARBON CONSUMPTION BEHAVIOR OCCUR? - AN ANALYSIS BASED ON ATTITUDE PROCESS** *Hong Chen, Qun Feng, Ruyin Long*
13:50-14:10	2-C3-3	**HOW DOES MARKET CONCERN DERIVED FROM INTERNET AFFECT OIL PRICES?** *Jianfeng Guo, Qiang Ji*
14:10-14:30	2-C3-4	**LIMITED COAL SUPPLY PRESENTS A CHALLENGE TO CHINA'S ECONOMIC GROWTH** *Jianliang Wang, Lianyong Feng, Gail E. Tverberg, Xiaoguang Yang*
14:30-14:50	2-C3-5	**SHARING EMISSION SPACE AT AN EQUITABLE BASIS: ALLOCATION SCHEME BASED ON PRINCIPLE OF EQUAL PER CAPITA CUMULATIVE EMISSIONS** *Xunzhang Pan, Fei Teng, Gehua Wang*
14:50-15:10	2-C3-6	**WHAT'S THE MOST COST-EFFECTIVE POLICY OF CO2 TARGET REDUCTION: AN APPLICATION OF E3METL MODEL WITH CCS?** *Hong-Bo Duan, Ying Fan*

2-C4: Regional Sustainable Energy Systems
Room: M3

Chairs: Bin Chen, Xianchun Tan

15:30-15:50	2-C4-1	**A 3-LEVEL EMERGETIC ANALYSIS FOR ENERGY EFFICIENCY AND SUSTAINABILITY: CASE STUDY OF A BIOGAS-AGRICULTURAL SYSTEM IN CHINA** *Shaoqing Chen, Bin Chen*
15:50-16:10	2-C4-2	**USING RENEWABLE ENERGY PARADIGM AS A TOOL FOR SUSTAINABLE VILLAGE CONCEPT (SVC) IN AFRICA** *Leonard Azimoh, Fedrik Wallin, Emma Nehrenheim, B. Karlsson, Sp Chowdhury, Sunetra Chowdhury*
16:10-16:30	2-C4-3	**SMALL SCALE HYDROPOWER GENERATION TOWARD COMMUNITY DEVELOPMENT: A CASE STUDY OF JAPANESE RURAL AREA** *Ayaka Yasunaga, Tokihiko Fujimoto, Yukihiro Shimatani*
16:30-16:50	2-C4-4	**MEASURES FOR IMPROVING THE ADOPTION OF HIGHER EFFICIENCY APPLIANCES IN INDONESIAN HOUSEHOLDS: ANALYSIS OF LIFETIME USE AND DECISION-MAKING IN THE PURCHASE OF ELECTRICAL APPLIANCES** *Muhammad Ery Wijaya, Tetsuo Tezuka*
16:50-17:10	2-C4-5	**SUSTAINABLE ENERGY SYSTEMS FOR A REMOTE ISLAND COMMUNITY** *Wenming Yang, Chin Ann Ho*

2-D1: Combustion Sciences
Room: M7

Chairs: Xuesong Bai, XH Yu

08:30-08:50	2-D1-1	**THE EFFECT OF A HOMOGENEOUS COMBUSTION CATALYST ON THE EMISSION CHARACTERISTICS FROM A COMPRESSION IGNITION ENGINE FUELLED WITH BIODIESEL** *Yu Ma, Mingming Zhu, Dongke Zhang*
08:50-09:10	2-D1-2	**DEVELOPMENT OF A PARTICLE SUBMODEL FOR CFD-SIMULATIONS OF FIXED-BED COMBUSTION** *Henrik Strom, Henrik Thunman*

09:10-09:30 2-D1-3 **NUMERICAL SIMULATION OF COMBUSTION PROCESS IN THE MICRO PARALLEL PLATE COMBUSTOR WITH TWO- NOZZLE**
J F Pan, W M Yang, S K Chou, A K Tang, B W Fan, Q B Lu, Q. Wang

09:30-09:50 2-D1-4 **THE NO GENERATION TO CO-COMBUSTION SAWDUST/COAL**
Pisa Ionel, Prisecaru Tudor

09:50-10:10 2-D1-5 **COMPARISON OF NATURAL GAS AND PARTIALLY REFORMED NATURAL GAS COMBUSTION IN A MODIFIED 100 KWE MICROTURBINE**
Frank Delattin, Xue-Song Bai

2-D2: Heat and Mass Transfer in Energy Applications
Room: M7

Chairs: YP Yang, SK Chou

10:30-10:50 2-D2-1 **COMBINED HEAT LOSSES IN A FULLY OPENED CYLINDRICAL CAVITY RECEIVER WITH BOTTOM WALL HEATED BY CONSTANT HEAT FLUX**
Shuang-Ying Wu, Dan Jia, Lan Xiao, Lian-Hui Xu

10:50-11:10 2-D2-2 **NUMERICAL SIMULATION OF COMBINED HEAT LOSSES FROM NATURAL CONVECTION AND SURFACE RADIATION OF A DISH RECEIVER WITH QUARTZ GLASS COVER**
Cui Fuqing, He Yaling, Cheng Zedong, Tao Yubing

11:10-11:30 2-D2-3 **SIMULATION OF CONVECTIVE HEAT TRANSFER WITH PERIODIC BOUNDARY IN STRUCTURED PACKED BEDS WITH DIFFERENT PARTICLE CONTACT TREATMENT METHODS**
Shanshan Bu, Mi Zhou, Shiyang Li, Jian Yang, Qiuwang Wang

11:30-11:50 2-D2-4 **MASS TRANSFER IN MICROFABRICATED PILLAR ARRAY COLUMNS**
Long Li, Xiaohong Yan, Jian Yang, Min Zeng, Qiuwang Wang

11:50-12:10 2-D2-5 **SIMULATION STUDIES ON THE HEAT AND MASS TRANSFER IN HIGH-TEMPERATURE MAGNESIUM HYDRIDE REACTORS**
Zewei Bao, Zhen Wu, Xinxin Cao, Fusheng Yang, Zaoxiao Zhang

2-D3: Numerical Modeling in Energy Applications
Room: M7

Chairs: Jinliang Xu, Hongwei Wu

13:10-13:30 2-D3-1 **CFD PREDICTION CONCERNING LARGE SCALE HYDROGEN STORAGE AND DELIVERY TANKS**
Liang Tong, Jinsheng Xiao, Pierre Bénard, Richard Chahine

13:30-13:50 2-D3-2 **A COMPREHENSIVE NUMERICAL APPROACH CFB UNITS MODELING BY MEANS OF CFD**
Aristeidis Nikolopoulos, Nikos Nikolopoulos, Panagiotis Grammelis, Emmanouel Kakaras

13:50-14:10 2-D3-3 **STRATIFIED TWO-PHASE FLOW PATTERN MODULATION IN A HORIZONTAL TUBE BY THE MESH PORE CYLINDER SURFACE**
Hongxia Chen, Jinliang Xu, Zhijing Li, Feng Xing, Jian Xie, Wei Zhang

14:10-14:30 2-D3-4 **ENERGY EVALUATION FOR VACUUM MEMBRANE DISTILLATION: MEMBRANES AND GEOTHERMAL ENERGY**
Chel-Ken Chiam, Saja Jaafar, Rosalam Sarbatly

14:30-14:50 2-D3-5 **A TWO-DIMENSIONAL FRYING MODEL FOR THE INVESTIGATION AND OPTIMISATION OF CONTINUOUS INDUSTRIAL FRYING SYSTEMS**
Hongwei Wu, Tassos Karayiannis, Savvas Tassou

14:50-15:10 2-D3-6 **THE 2ND GENERATION VACUUM INSULATION PANEL**
Jongmin Kim, Bong-Su Choi, Tae-Ho Song, Inseok Yeo

2-D4: Gasification of Coal, Biomass and Solid Wastes
Room: M7

Chairs: Zhang DK, Hailong Li

15:30-15:50 2-D4-1 **SOME FUNDAMENTALS OF CRACKING GASIFICATION PROCESS OF PETROLEUM RESIDUE**
Zhang Yuming, Yu Deping, Wang Yin, Gao Shiqiu, Xu Guangwen

15:50-16:10 2-D4-2 **ANALYSIS OF BIOMASS GASIFICATION GAS CLEANING SYSTEM AND TAR REMOVAL FOR RURAL ELECTRIFICATION IN DEVELOPING COUNTRIES**
Anchan Paethanom, Shota Nakahara, Masataka Kobayashi, Jakapong Apirom, Apirak Terdputtakun, Chotpong Jujan

16:10-16:30 2-D4-3 **CHARACTERISTICS OF THE STEAM GASIFICATION OF PHENOL BOARD IN THE PRESENCE OF CARBONATES**
Shangzhong Zhang, Kunio Yoshikawa, Hideki Nakagome, Tohru Kamo

16:30-16:50 2-D4-4 **AIR-BLOWN GASIFICATION OF WOODY BIOMASS IN A BUBBLING FLUIDIZED BED GASIFIER**
Youngdoo Kim, Changwon Yang, Beomjong Kim, Jeungwoo Lee, Jihong Moon, Kwangsu Kim, Won Yang, Uendo Lee

16:50-17:10 2-D4-5 **COAL GASIFICATION MODELING IN AN ENTRAINED-FLOW GASIFIER**
Peter Mashingo, John Geoffrey , Cuthbert Mhilu

2-E1: Energy Conservation and Process integration in industries
Room: M8

Chairs: Joakim Lundgren, Mikael Larsson

08:30-08:50 2-E1-1 **PILOT SCALE TESTS OF DIFFERENT COALS FOR THE USAGE IN THE GRATE-KILN PROCESS AT LKAB**
Bo Lindblom, Christian Fredriksson, Samuel Jonsson, Lars-Olof Nordin, Henrik Wiinikka

08:50-09:10 2-E1-2 **FRAMEWORK METHODOLOGY FOR INCREASED ENERGY EFFICIENCY AND RENEWABLE FEEDSTOCK INTEGRATION IN INDUSTRIAL CLUSTERS**
Roman Hackl, Simon Harvey

09:10-09:30 2-E1-3 **DEVELOPMENT OF A DECISION SUPPORT TOOL FOR OPTIMISED MANAGEMENT OF AN INTEGRATED STEELMAKING PLANT FOCUSED ON ENERGY CONSUMPTION AND CO2 EMISSIONS REDUCTION**
Giacomo Filippo Porzio, Valentina Colla, Barbara Fornai, Alessandro Amato, Nicola Matarese, Marco Vannucci, Lisa Chiappelli

09:30-09:50 2-E1-4 **A REVIEW OF WASTE HEAT RECOVERY TECHNOLOGIES TOWARDS MOLTEN SLAG IN STEEL INDUSTRY**
Hui Zhang, Hong Wang , Yong-Jun Qiu, Kai Li, Xun Zhu, Rong Chen, Qiang Liao

09:50-10:10 2-E1-5 **NATURAL GAS PRESSURIZED LIQUEFACTION PROCESS ADOPTING GAS EXPANSION REFRIGERATION AND CO2 REMOVAL BY ANTI-SUBLIMATION**
Iaojun Xiong, Wensheng Lin, Anzhong Gu

2-E2: Bioenergy Systems With Co2 Capture
Room: M8

Chairs: Florian Kraxner, Sabine Fuss

10:30-10:50 2-E2-1 **SYSTEM ANALYSIS OF DRY BLACK LIQUOR GASIFICATION BASED SYNTHESIS GAS PRODUCTION COMPARING OXYGEN AND AIR BLOWN GASIFICATION SYSTEMS**
Muhammad Naqvi, Jinyue Yan, Erik Dahlquist

10:50-11:10 2-E2-2 **PLANT PERFORMANCE AND ECONOMIC ASSESSMENT OF OXY-FUEL COMBUSTION IGCC COMBINED WITH A BIOMASS COMBUSTION BOILER**
Ryuichi Mori, Yohji Uchiyama, Kanji Oshima

11:10-11:30 2-E2-3 **MICROALGAL BIOMETHANE PRODUCTION INTEGRATED WITH AN EXISTING BIOGAS PLANT: A CASE STUDY IN SWEDEN**
Xiaoqiang Wang, Eva Nordlander, Eva Thorin, Jinyue Yan

11:50-12:10 2-E2-5 **NEGATIVE EMISSION THROUGH BIOENERGY – A GEOGRAPHICALLY EXPLICIT BECCS STUDY ON RUSSIA**
Florian Kraxner, Kentaro Aoki, Sylvain Leduc, Sabine Fuss, Georg Kindermann, Dmitry Schepaschenko, Anatoly Shvidenko

2-E3: Advanced Power and Polygeneration Systems
Room: M8

Chairs: Uchiyama Yohji, Albeto Traverso

15:10-15:30 2-E3-1 **WATER INJECTION IN A MICROGASTURBINE - ASSESSMENT OF THE PERFORMANCE USING A BLACK BOX METHOD**
Ward De Paepe, Frank Delattin, Svend Bram, Jacques De Ruyck

15:30-15:50 2-E3-2 **MICRO TRIGENERATION SYSTEM DRIVEN WITH PREHEATED CROTON OIL - A PERFORMANCE AND PARTICULATE EMISSION STUDY**
Dawei Wu, Renjie Dong

15:50-16:10 2-E3-3 **NUMERICAL INVESTIGATION OF A HYDROGEN IMPINGING FLAME WITH REDUCED AND DETAILED KINETICS**
Daniel Mira Martinez, Xi Jiang

16:10-16:30 2-E3-4 **CHARACTERIZATION OF LOW TEMPERATURE CO-FIRED CERAMIC VAPORIZING LIQUID MICROTHRUSTER AT SEA LEVEL CONDITIONS**
K. Karthikeyan, S.K. Chou, L.E. Khoong, Y.M. Tan, W.M. Yang

16:30-16:50 2-E3-5 **PERFORMANCE ANALYSIS OF AN INTEGRATED CHP SYSTEM WITH THERMAL AND ELECTRIC ENERGY STORAGE FOR RESIDENTIAL APPLICATION**
Michele Bianchi, Andrea De Pascale, Francesco Melino

16:50-17:10 2-E3-6 **PARAMETRIC THERMODYNAMIC ANALYSIS OF DIFFERENT ORGANIC RANKINE CYCLE CONFIGURATIONS**
Lisa Branchini, Andrea De Pascale, Antonio Peretto

2-E4: Cogeneration, Trigeneration and Novel Power Generation Systems
Room: M8

Chairs: YD Wang, GH Tian

15:30-15:50 2-E4-1 **ADVANCED HEAT PUMPS WITH THERMAL STORAGE FOR DEMAND SIDE MANAGEMENT**
Neil Hewitt, Mingjun Huang

15:50-16:10 2-E4-2 **COMPARATIVE TECHNO-ECONOMIC ANALYSIS OF BIOMASS FUELLED COMBINED HEAT AND POWER FOR COMMERCIAL BUILDINGS**
Ye Huang, David Mcilveen-Wright, Sina Rezvani, Yaodong Wang, Neil Hewitt

16:10-16:30 2-E4-3 **STUDY ON A SMALL SCALE SOLAR POWERED ORGANIC RANKINE CYCLE UTILIZING SCROLL EXPANDER**
Yiji Lu, Liwei Wang, Guohong Tian, A.P. Roskilly

16:30-16:50 2-E4-4 **THE FREE-PISTON RECIPROCATING JOULE CYCLE ENGINE: A NEW APPROACH TO EFFICIENT DOMESTIC CHP GENERATION**
Rikard Mikalsen, Anthony P. Roskilly

16:50-17:10 2-E4-5 **INVESTIGATION OF A COMBINED CHP WITH ENERGY STORAGE SYSTEM**
Xiangping Chen, Yaodong Wang, Dawei Wu, Hongdong Yu, Yapeng Li, Tony Roskilly

2-F1: Performance of Heat Pump Systems
Room: M4

Chairs: Jun Zhao, SM Deng

08:30-08:50 2-F1-1 **THERMODYNAMIC PERFORMANCE OF DOUBLE ABSORPTION HEAT TRANSFORMER WITH A NEW WORKING PAIR COMPOSED OF IONIC LIQUID AND WATER**
Xiaodong Zhang, Zongchang Zhao, Dapeng Hu

08:50-09:10 2-F1-2 **EFFECTS OF GROUNDWATER TABLE ON THERMAL RESPONSE TEST ANALYSIS FOR GROUND-SOURCE HEAT PUMP SYSTEMS**
C. K. Lee, H. N. Lam

09:10-09:30 2-F1-3 **CHARACTERISTIC ANALYSIS AND OPTIMIZATION OF CROSS FLOW HEAT-SOURCE TOWER BASED ON ENTRANSY DISSIPATION**
Wen Xiantai, Liang Caihua, Zhang Xiaosong

09:30-09:50 2-F1-4 **NUMERICAL SIMULATION OF FUNDAMENTAL CHARACTERISTICS OF AN EXOTHERMIC REACTOR IN CHEMICAL HEAT PUMP WITH LBM**
Fang Xin, Xunfeng Li, Xiulan Huai, Jun Cai

09:50-10:10 2-F1-5 **PERFORMANCES OF AIR SOURCE HEAT PUMP SYSTEM FOR A KIND OF MAL-DEFROST PHENOMENON APPEARING IN MODERATE CLIMATE CONDITIONS**
Wei Wang, Yingchao Feng, Weipeng Lu, Qingci Guo, Xingguo Dong

2-F2: Optimization and Operation Performance of Energy Systems
Room: M4

Chairs: Hongwei Wu, Erik Dahlquist

10:30-10:50 2-F2-1 **RESEARCH ON DIFFERENT STRUCTURES OF MICRO GRID FOR VARIOUS APPLICATIONS**
Haoyan Wei, Fengguang Shi

10:50-11:10 2-F2-2 **ADAPTIVE PARAMETER ESTIMATION FOR AN ENERGY MODEL OF BELT CONVEYOR WITH DC MOTOR**
Yanjun Shen, Xiaohua Xia

11:10-11:30 2-F2-3 **A NOVEL FAULT DETECTION STRATEGY FOR CENTRIFUGAL CHILLER BASED ON SUPPORT VECTOR DATA DESCRIPTION (SVDD)**
Zhao Yang, Wang Shengwei, Xiao Fu

11:30-11:50 2-F2-4 **OPTIMAL OPERATION SCHEDULING AND CONTROL OF A PUMPING STATION WITH MULTIPLE PUMPS**
Xiangtao Zhuan, Xiaohua Xia

11:50-12:10 2-F2-5 **ON-LINE MONITORING AND OPTIMIZATION OF PERFORMANCE INDEXES FOR LIMESTONE WET DESULFURIZATION TECHNOLOGY**
Jianyun Bai, Pengfei Hou

Day 2 / July 7

2-F3: Life Cycle Assessment of Energy Systems
Room: M4

Chairs: Leif Gustavsson, U. Desideri

13:10-13:30 **2-F3-1** **LIFE CYCLE PRIMARY ENERGY USE AND CARBON FOOTPRINT OF WOOD-FRAME CONVENTIONAL AND PASSIVE HOUSES WITH BIOMASS-BASED ENERGY SUPPLY**
Leif Gustavsson, Ambrose Dodoo

13:30-13:50 **2-F3-2** **LIFE CYCLE GHG ANALYSIS OF RICE STRAW BIO-DME PRODUCTION AND APPLICATION IN THAILAND**
Thapat Silalertruksa, Shabbir Gheewala, Masayuki Sagisaka, Katsunobu Yamaguchi

13:50-14:10 **2-F3-3** **CARBON AND ENVIRONMENTAL FOOTPRINTS OF GLOBAL BIOFUEL PRODUCTION**
Geoffrey Hammond, Shashank Seth

14:10-14:30 **2-F3-4** **CARBON FOOTPRINT OF A REFLECTIVE FOIL AND COMPARISON WITH OTHER SOLUTIONS FOR THERMAL INSULATION IN BUILDING ENVELOPE**
Proietti Stefania, Umberto Desideri, Paolo Sdringola, Francesco Zepparelli

14:30-14:50 **2-F3-5** **LIFE CYCLE INPUT-OUTPUT ANALYSIS EXTENDED TO USE, DISPOSAL, AND RECYCLING STAGES: CASE STUDY OF A REFRIGERATOR**
Yuki Mizumoto, Yohji Uchiyama, Keiichi Okajima

14:50-15:10 **2-F3-6** **LIFE CYCLE ENERGY ASSESSMENT FOR A COMBINED COOLING,HEATING AND POWER SYSTEM RUNNING WITH METHANOL AND SOLAR ENERGY**
Sheng Li, Jianjiao Zhen, Jun Sui, Hongguang Jin

2-F4: Panel I: Challenges for the Future Energy
Room: M4

Chair: SD Tu

3-A1: Electric Vehicles & Battery
Room: M1

Chairs: Yuh-Yih Wu, SD Tu

08:30-08:50 **3-A1-1** **POWER MANAGEMENT ANALYSIS OF RANGE EXTENDED ELECTRIC VEHICLE USING DYNAMIC PROGRAMMING**
Hsien-Chi Tsai, Bo-Chiuan Chen, Yuh-Yih Wu

08:50-09:10 **3-A1-2** **ENERGY MANAGEMENT STRATEGY RESEARCH ON A HYBRID POWER SYSTEM BY HARDWARE-IN-LOOP EXPERIMENTS**
Hongwen He, Shang'An Gao, Rui Xiong, Kai Zhao

09:10-09:30 **3-A1-3** **ULTRA-THIN MINICHANNEL LCP FOR EVS BATTERY THERMAL MANAGEMENT**
L.W. Jin, P.S. Lee, Y. Fan, S.K. Chou

09:30-09:50 **3-A1-4** **ANALYSIS ON EFFECTS OF EJECTOR AND INTERNAL HEAT EXCHANGER ON TRANSCRITICAL CO2 HEAT PUMP SYSTEM**
Tao Li, Xiaohong Han, Qi Chen, Yang Tong, Guangming Chen, Liming Tang, Daliang Hong

14:10-14:30 **3-A1-5** **MULTI-BUILDING MICROGRIDS FOR A DISTRIBUTED ENERGY FUTURE IN PORTUGAL**
Goncalo Mendes, Paulo Ferrao, Christos Ioakimidis, Chris Marnay, Michael Stadler

3-A2: Energy Storage Materials and Technologies
Room: M1

Chairs: Xiaoxi Yang, Weilong Wang

10:30-10:50 **3-A2-1** **NUMERICAL MODELING FOR SOLID-LIQUID PHASE CHANGE PHENOMENA IN POROUS MEDIA**
Zhenyu Liu, Yuanpeng Yao, Huiying Wu

10:50-11:10 **3-A2-2** **EXPERIMENTAL INVESTIGATION OF A GAS FIRED HOT WATER AND SPACE HEATING COMBINE SYSTEM WITH HOT WATER STORAGE TANK**
Bu Qiu, Xiaosong Zhang, Liliang Dou