

International Conference on New Energy and Future Energy System 2016 (NEES 2016)

IOP Conference Series: Earth and Environmental Science
Volume 40

Beijing, China
19 – 22 August 2016

Editor:

Grigorios L. Kyriakopoulos

ISBN: 978-1-5108-3050-9
ISSN: 1755-1307

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2016) by the Institute of Physics
All rights reserved. The material featured in this book is subject to
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Table of contents

Volume 40

2016 International Conference on New Energy and Future Energy System (NEFES 2016)

19–22 August 2016, Beijing, China

Accepted papers received: 8 August 2016

Published online: 26 September 2016

Preface

011001

OPEN ACCESS

[2016 International Conference on New Energy and Future Energy System \(NEFES 2016\)](#)

Grigorios L. Kyriakopoulos

011002

OPEN ACCESS

[Peer review statement](#)

Papers

012001

OPEN ACCESS

[An improved thermal network model of the IGBT module for wind power converters considering the effects of base plate solder fatigue](#)

H Li, Y G Hu, S Q Liu, Y Li, X L Liao and Z X Liu.....1

012002

OPEN ACCESS

[Experimental study on ignition characteristics of pulverized coal under high-temperature oxygen condition](#)

G W Liu, Y H Liu and P Dong.....11

012003

OPEN ACCESS

[A Wolf Pack Algorithm for Active and Reactive Power Coordinated Optimization in Active Distribution Network](#)

H M Zhuang and X J Jiang.....22

012004

OPEN ACCESS

[Field survey analysis of the public's cognition on the new energy industry in China](#)

Q F Guo and Y Song.....31

012005

OPEN ACCESS

[Economic-energy-industrial-environmental optimization \(EEIEO\) model for identification of optimal strategies - a case study of Beijing-Tianjin-Hebei region, China](#)

C Chen, H L Long, J Wan, JL Jia, X Li and CJ Chu.....39

012006

OPEN ACCESS

[A mathematical procedure to predict optical performance of CPCs](#)

Y M Yu, M J Yu and R S Tang.....56

012007

OPEN ACCESS

[Assessment of energy and economic performance of office building models: a case study](#)

X Y Song, C T Ye, H S Li, X L Wang and W B Ma.....74

012008

OPEN ACCESS

[Study on the oxidative stability of poly a-olefin aviation lubricating base oil using PDSC method](#)

N Wu, Y W Fei, H W Yang, Y M Wang and Z M Zong.....90

012009

OPEN ACCESS

[Study on High Efficient Electric Vehicle Wireless Charging System](#)

H X Chen, Z Z Liu, H Zeng, X D Qu and Y J Hou.....96

012010

OPEN ACCESS

[Optimization of unipolar magnetic couplers for EV wireless power chargers](#)

H Zeng, Z Z Liu, H X Chen, B Zhou and T Hei.....105

012011

OPEN ACCESS

[Classifications of central solar domestic hot water systems](#)

J Y Guo, B Hao, C Peng and S S Wang.....114

012012

OPEN ACCESS

[The asymmetric effect of coal price on the China's macro economy using NARDL model](#)

J C Hou and M C Yang.....123

012013

OPEN ACCESS

[The theoretical analysis and experimental research on the optimal condition of semiconductor refrigeration](#)

Y F Pang.....129

012014

OPEN ACCESS

[Energy consumption quota management of Wanda commercial buildings in China](#)

D B Sun, H Xiao, X Wang, J J Liu, X Wang, X Q Jin, J Wang and X K Xie.....137

012015

OPEN ACCESS

[Catalytic performances of HZSM-5, NaY and MCM-41 in two-stage catalytic pyrolysis of pinewood](#)

Y M Wang and J Wang.....154

012016

OPEN ACCESS

[Effects of setting angle on performance of fish-bionic wind wheel](#)

G S Li, Z X Yang, L Song, Q Chen, Y B Li and W Chen.....161

012017

OPEN ACCESS

[Cutback sensitivity test for boron-free small modular PWR](#)

J Choe, H C Shin, J E Jeong and D Lee.....170

012018

OPEN ACCESS

[Hong Kong CIE sky classification and prediction by accessible weather data and trees-based methods](#)

S Lou, D H W Li and J C Lam.....177

012019

OPEN ACCESS

[The compatibility evaluation of Cr³⁺ Gel system and polymer/surfactant system with alternating injection mode](#)

J H Zhang, H K Li, Y N Wang, J Q Zhi and Y Liu.....188

012020

OPEN ACCESS

[The performance evaluation of nano-micron microsphere for profile control and displacement agent in low permeability reservoir](#)

J H Zhang, Y N Wang, X Y Wang, X J Zhuo, X Q Zhang and C Liu.....195

012021

OPEN ACCESS

[Rules of pulverized coal output under different components of coal petrography and different coal structure in Hancheng Block, China](#)

S G Liu, K Tu, Z G Peng, Y Shao, Y Y Liu and Y Fu.....200

012022

OPEN ACCESS

[A novel fault diagnosis method of PV based-on power loss and I-V characteristics](#)

Y H Chen, R Liang, Y Tian and F Wang.....212

012023

OPEN ACCESS

[Optimization design and compare of different solar-ground source heat pump system of office building in cold regions](#)

H Xie, S He and Y Fu.....226

012024

OPEN ACCESS

[The method of determining the insulation parameters in three-phase electrical networks with isolated neutral with voltages up to and above 1000 V](#)

B B Utegulov.....242

012025

OPEN ACCESS

[Improved control strategy for PI-R current of DFIG considering voltage and current harmonics compensation](#)

S Y Song, Q H Liu, Y N Zhao and S Y Liu.....253

012026

OPEN ACCESS

[Review of optimization techniques of polygeneration systems for building applications](#)

Rong A Y, Su Y and Lahdelma R.....267

012027

OPEN ACCESS

[Experimental investigation of static ice refrigeration air conditioning system driven by distributed photovoltaic energy system](#)

Y F Xu, M Li, X Luo, Y F Wang, Q F Yu and R H E Hassanién.....281

012028

OPEN ACCESS

[A new cascaded control strategy for paralleled line-interactive UPS with LCL filter](#)

X Y Zhang, X H Zhang, L Li, F Luo and Y S Zhang.....293

012029

OPEN ACCESS

[A new metal detection method based on balanced coil for mobile phone wireless charging system](#)

B Zhou, Z Z Liu, H X Chen, H Zeng and T Hei.....304

012030

OPEN ACCESS

[A fault diagnosis system for PV power station based on global partitioned gradually approximation method](#)

S Wang, X N Zhang, D D Gao, H X Liu, J Ye and L R Li.....313

012031

OPEN ACCESS

[Feasibility of drying system using waste heat as the heating source](#)

M N Xie, Y L Shi and L X Chen.....325

012032

OPEN ACCESS

[Establishment of key grid-connected performance index system for integrated PV-ES system](#)

Q Li, X D Yuan, Q Qi and H M Liu.....335

012033

OPEN ACCESS

[Fuzzy comprehensive evaluation for grid-connected performance of integrated distributed PV-ES systems](#)

Z H Lv, Q Li, R W Huang, H M Liu and D Liu.....344

012034

OPEN ACCESS

[A monitoring system based on electric vehicle three-stage wireless charging](#)

T Hei, Z Z Liu, Y Yang, CHEN Hongxing, B Zhou and H Zeng.....353

012035

OPEN ACCESS

[The design of a vehicle-mounted test system for the thermal performance of solar collector](#)

S R Wen, X H Wu, L Zhou, W Zheng, L Liu and J C Yan.....359

012036

OPEN ACCESS

[Analysis on using biomass lean syngas in micro gas turbines](#)

C Mărculescu, V E Cenușă and F N Alexe.....367

012037

OPEN ACCESS

[Wind farm micro-siting optimization using novel cell membrane approach](#)

W Huang, W X Che, R S Tan, M X Li and Q Liu.....379

012038

OPEN ACCESS

[Transmission line icing prediction based on DWT feature extraction](#)

T N Ma, D X Niu and Y L Huang.....389

012039

OPEN ACCESS

[Design and development of a solar powered mobile laboratory](#)

L Jiao, A Simon, H Barrera, V Acharya and W Repke.....400

012040

OPEN ACCESS

[Difference between the maximum empirical and field measured peak Watt values of thermal power system under highly sufficient solar conditions](#)

O A Elhussain and T I M Abdel-Magid.....407

012041

OPEN ACCESS

[The basic approach to the performance test of the ALIP for GENIV sodium fast reactor](#)

H R Kim and Y B Lee.....413

012042

OPEN ACCESS

[Co-hydrogasification of lignocellulosic biomass and swelling coal](#)

J Zhang, N Zheng and J Wang.....419

012043

OPEN ACCESS

[Design of multi-energy Heds coupling testing system of vertical axis wind power system](#)

Q Chen, Z X Yang, G S Li, L Song and C Ma.....426

012044

OPEN ACCESS

[Design of wide-area time-delay supplementary controller for interconnected Network based on Hamilton function method](#)

G Hailati and Z H Hu.....434

012045

OPEN ACCESS

[Experimental investigation of thermal characteristics of lithium ion battery using phase change materials combined with metallic foams and fins](#)

Y C Deng, H Y Zhang and X Xia.....449

012046

OPEN ACCESS

[Numerical analysis of phase change materials for thermal control of power battery of high power dissipations](#)

X Xia, H Y Zhang and Y C Deng.....461

012047

OPEN ACCESS

[Regulation for Optimal Liquid Products during Biomass Pyrolysis: A Review](#)

F Wang, L J Hu, Y W Zheng, Y B Huang, X Q Yang, C Liu, J Kang and Z F Zheng.....473

012048

OPEN ACCESS

[Relation between quality and production cost for pure biodiesel bases on the mixes of raw materials](#)

C G Tsanaktsidis, K G Spinthiropoulos, Fariz Guliyev, D Dimitriou, K Euthaltsidou and G T Tzilantonis.....488

012049

OPEN ACCESS

[A new anti-slough drilling fluid study and application](#)

X Y Zhao, Y F Meng, X T Hou, C Xiao, G Li and C C Niu.....499

012050

OPEN ACCESS

[Research of Hybrid Three-phase equilibrium Technology](#)

K Xu, Z Z Liu, G Z Qi and Y J Hou.....508

012051

OPEN ACCESS

[Study on impact of energy price comparison on energy saving benefits of heat pump in North China](#)

X Dong, Q Tian, Y G Zhang and H F Bai.....515

012052

OPEN ACCESS

[Development of economic and environmental metrics for forest-based biomass harvesting](#)

F L Zhang, J J Wang, S H Liu and S M Zhang.....523

012053

OPEN ACCESS

[Study on load forecasting to data centers of high power density based on power usage effectiveness](#)

C C Zhou, F Zhang, Z Yuan, L M Zhou, F M Wang, W Li and J H Yang.....535

012054

OPEN ACCESS

[Analysis on influencing factors of EV charging station planning based on AHP](#)

F Yan and X F Ma.....541

012055

OPEN ACCESS

[Objective criteria ranking framework for renewable energy policy decisions in Nigeria](#)

Nwofor O K and Dike V N.....547

012056

OPEN ACCESS

[Research on the competitiveness and development strategy of china's modern coal chemical industry](#)

Q Wang, Y J Han and Z F Yu.....557

012057

OPEN ACCESS

[A maximum power point tracking algorithm for buoy-rope-drum wave energy converters](#)

J Q Wang, X C Zhang, Y Zhou, Z C Cui and L S Zhu.....566

012058

OPEN ACCESS

[Study on pyrolysis gas in thermal extraction of Bai Yinhua lignite with industrial washing oil](#)

Y M Cui, X P Lian, F Y Zhao, Y Q Xu, Y Q Hu, Z K Yuan and X R Hao.....574

012059

OPEN ACCESS

[Preparation and characterization of NiO photocathodes sensitized with PbS quantum dots](#)

X W Li, R X Chen, Q Lu, K J Wei, Y P Du, X J Wang, T Hao, L Li, X X Yuan and M Zhang.....581

012060

OPEN ACCESS

[Comparative study on the ventilation mode of the residential building in Beijing area in winter](#)

G J Wang, Q P Li, Y Guo and Y H Hu.....586

012061

OPEN ACCESS

[Research on feasibility of computational fluid dynamics \(CFD\) method for traffic signs board calculation](#)

S Chao, C W Jiao and S Liu.....592

012062

OPEN ACCESS

[Numerical simulation on a straight-bladed vertical axis wind turbine with auxiliary blade](#)

Y Li, Y F Zheng, F Feng, Q B He and N X Wang.....601

012063

OPEN ACCESS

[Degradation analysis of photovoltaic modules based on operational data: effects of seasonal pattern and sensor drifting](#)

X Y Li.....608

012064

OPEN ACCESS

[An improved AVC strategy applied in distributed wind power system](#)

Y N Zhao, Q H Liu, S Y Song and W Mao.....615

012065

OPEN ACCESS

[Study on application of capillary plane radiation air conditioning system based on the slope roof](#)

Y G Li, T T Wang, X L Liu and X Z Dong.....625

012066

OPEN ACCESS

[Study of a control strategy for grid side converter in doubly- fed wind power system](#)

D J Zhu, Z L Tan, F Yuan, Q Y Wang and M Ding.....632

012067

OPEN ACCESS

[Thermal performance and stress analyses of the cavity receiver tube in the parabolic trough solar collector](#)

F Cao, Y Li, L Wang and T Y Zhu.....641

012068

OPEN ACCESS

[Identification to oil cracking in east of Sichuan Basin](#)

Jian Ming Guo and Yan Xia Li.....651

012069

OPEN ACCESS

[LPG gaseous phase electronic port injection on performance, emission and combustion characteristics of Lean Burn SI Engine](#)

Pradeep Bhasker J and Porpatham E.....657

012070

OPEN ACCESS

[Chlorine behavior during co-hydrothermal treatment of high alkali coal and PVC](#)

N Huang, P T Zhao, Z Z Li and T Li.....668

012071

OPEN ACCESS

[Dynamic response characteristics analysis of the doubly-fed wind power system under grid voltage drop](#)

Y Chen, J Wang, H H Wang, L Yang, W Chen and Y T Xu.....677

012072

OPEN ACCESS

[Catalytic pyrolysis of model compounds and waste cooking oil for production of light olefins over La/ZSM-5 catalysts](#)

F W Li, S L Ding, L Li, C Gao, Z Zhong, S X Wang and Z X Li.....687

012073

OPEN ACCESS

[Optimization of thermal performance of Ranque Hilsch Vortex Tube: MADM techniques](#)

K D Devade and A T Pise.....694

012074

OPEN ACCESS

[Study of methane hydrate as a future energy resource: low emission extraction and power generation](#)

L Chen, H Yamada, Y Kanda, H Sasaki, J Okajima, Y Iga, A Komiya and S Maruyama.....713

012075

OPEN ACCESS

[Indoor weather related to the energy consumption of air conditioned classroom: Monitoring system for energy efficient building plan](#)

W Rattanongphisat, A Suwannakom and A Harfield.....722

012076

OPEN ACCESS

[Overall review of feed-in tariff and renewable portfolio standard policy: A perspective of China](#)

Q Y Yan, Q Zhang, L Yang and X Wang.....730

012077

OPEN ACCESS

[Fine study on single sand body and measures for tapping the potential of residual oil during polymer flooding in Pubei reservoir of Daqing](#)

Y J Meng.....741

012078

OPEN ACCESS

[Study on model current predictive control method of PV grid- connected inverters systems with voltage sag](#)

N Jin, F Yang, S Y Shang, T Tao and J S Liu.....750

012079

OPEN ACCESS

[Energy-efficient vertical transportation with sensor information in smart green buildings](#)

H Bahn.....760

012080

OPEN ACCESS

[Real options analysis for photovoltaic project under climate uncertainty](#)

Kyeongseok Kim, Sejong Kim and Hyoungkwon Kim.....770

012081

OPEN ACCESS

[The influence of thermal insulation position in building exterior walls on indoor thermal comfort and energy consumption of residential buildings in Chongqing](#)

D Wang, W Yu, X Zhao, W Dai and Y Ruan.....778

012082

OPEN ACCESS

[3Microcanonical entropy as a function of energies for the Triangular-Lattice Blume-Capel magnetic system](#)

W Kwak, S Park and S Y Kim.....791

012083

OPEN ACCESS

[Investigation of parameter limit of selecting polymer flooding potential block at the Pubei Oilfield](#)

Y N Wang, J H Zhang, D Guan and C Liu.....796

012084

OPEN ACCESS

[Temperature distribution of air source heat pump barn with different air flow](#)

X He, J C Li and G Q Zhao.....801

012085

OPEN ACCESS

[Design for the turbine of solar chimney power plant system with vertical collector](#)

Y Zhou, B Gao, H R Dong and K Hao.....808

012086

OPEN ACCESS

[Application of new geological modeling technology in secondary development in Daqing oil field](#)

C L Li, J H Zhang, H K Li and C Liu.....818

012087

OPEN ACCESS

[Energy conservation behavioural intention: attitudes, subjective norm and self-efficacy](#)

J W C Lee and A Tanusia.....825