

# **8th National Scientific Conference on Advances in Electrotechnology (Postepy w Elektrotechnologii)**

IOP Conference Series: Materials Science and Engineering  
Volume 113

Jamrozowa Polana, Poland  
23 – 25 September 2015

## **Editors:**

**Bronisław Szubzda  
Maciej Jaroszewski**

**Sylwia Talik  
Grzegorz Pasciak**

ISBN: 978-1-5108-2229-0  
ISSN: 1757-8981

**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© (2015) 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](mailto: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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# Table of contents

## Volume 113

**2016**

**8th National Scientific Conference Advances in Electrotechnology (Postępy w Elektrotechnologii)**

**23–25 September 2015, Jamrozowa Polana, Poland**

**Accepted papers received: 25 January 2016**

**Published online: 11 March 2016**

**Preface**

011001

OPEN ACCESS

[PWE: 8th National Scientific Conference Advances in Electrotechnology \(Postępy w Elektrotechnologii\)](#)

011002

OPEN ACCESS

[Technical Editors](#)

011003

OPEN ACCESS

[Conference Scientific Committee](#)

011004

OPEN ACCESS

[Competition for Young Scientists](#)

011005

OPEN ACCESS

[Peer review statement](#)

**Papers**

**DIELECTRIC MATERIALS**

012001

OPEN ACCESS

[Dielectric response change of pressboard immersed with mineral oil after replacing insulating liquid with synthetic ester](#)

P. Fatyga pg. 1

012002

OPEN ACCESS

[Dielectric properties of polymer composites with the addition of ferrite nanoparticles](#)

A Kisiel, M Konieczny and M Zabska pg. 6

012003

OPEN ACCESS

[Analysis of the possibilities of using dielectric foam in the construction of composite high voltage post-insulators](#)

T Mączka, G Paściak, A Jarski and M Piątek pg. 14

012004

OPEN ACCESS

[Optimization of electret film forming method](#)

B Łowkis and J Kupracz pg. 24

012005

OPEN ACCESS

[The behaviour of water droplets on the silicone rubber surface in an electric field](#)

W Bretuj and A Pelesz pg. 29

## **PLASMA TECHNOLOGY**

012006

OPEN ACCESS

[Microplasma technology for carbon micro- and nanostructures formation in gas at atmospheric pressure](#)

A T Sobczyk, A Jaworek and M Klein pg. 36

012007

OPEN ACCESS

[Thin-film  \$\text{TiPbO}\_3\$  varistors obtained by two-source magnetron sputtering](#)

J Ziaja and M Lewandowski pg. 41

012008

OPEN ACCESS

[Equivalent circuit of a coaxial-line-based nozzleless microwave 915 MHz plasma source](#)

R Miotk, M Jasiński and J Mizeraczyk pg. 45

012009

OPEN ACCESS

[Magnetic thin film deposition with pulsed magnetron sputtering: deposition rate and film thickness distribution](#)

M Ozimek, W Wilczyński and B Szubzda pg. 50

012010

OPEN ACCESS

[EMI shielding using composite materials with two sources magnetron sputtering](#)

J Ziaja, M Jaroszewski and M Lewandowski pg. 56

## **SPECIAL MATERIALS & TECHNOLOGIES**

012011

OPEN ACCESS

[Design, fabrication and characterization of LTCC-based electromagnetic microgenerators](#)

M Gierczak, P Markowski and A Dziedzic pg. 60

012012

OPEN ACCESS

[Evaluation of Polyesterimide Nanocomposites Using Methods of Thermal Analysis](#)

B Gornicka, L Gorecki, K Gryzlo, D Kaczmarek and D Wojcieszak pg. 65

012013

OPEN ACCESS

[Study of electrokinetic properties of nanofillers used for the preparation of nanocomposites](#)

B Górnicka, K Gryzłó and L Górecki pg. 69

012014

OPEN ACCESS

[The research of ceramic materials for applications in the glass industry including microwave heating techniques](#)

K. Kogut, K. Kasprzyk, B. Zboromirska-Wnukiewicz and T. Ruziewicz pg. 74

012015

OPEN ACCESS

[Electrical properties of varistors based on tin oxide](#)

W Mielcarek, K Prociów and J Warycha pg. 82

012016

OPEN ACCESS

[The investigation of the light radiation caused polyethylene based materials deterioration by means of atomic force microscopy](#)

A Sikora, A Grabarek, L Moroń, M Wałęcki and P Kryla pg. 86

012017

OPEN ACCESS

[Corrosion resistance of the AISI 304, 316 and 321 stainless steel surfaces modified by laser](#)

B. Szubzda, A. Antończak, P. Koziół, Ł. Łazarek, B. Stępak, K. Łęcka, A. Szmaja and M. Ozimek pg. 92

012018

OPEN ACCESS

[Applying of non-toxic oxide alloys and hybrid polianiline compounds as anticorrosive pigments in organic epoxy coatings](#)

W Szymański, A Halama and J Madaliński pg. 100

## **MAGNETIC & SUPERCONDUCTING MATERIALS**

012019

OPEN ACCESS

[Analysis of electric current flow through the HTc multilayered superconductors](#)

J Sosnowski pg. 104

012020

OPEN ACCESS

[Acoustic emission during fracture of ceramic superconducting materials](#)

L Woźny, A Kisiel and K Łysy pg. 108

012021

OPEN ACCESS

[The interaction between the permanent magnet and ceramic superconductor with organic filler](#)

L Woźny, A Kisiel and A Garbera pg. 114

## **NOVEL SOURCES & ENERGY STORAGES**

012022

OPEN ACCESS

[Direct waste heat recovery via thermoelectric materials - chosen issues of the thermodynamic description](#)

Piotr Kolasiński and Ewa Kolasińska pg. 118

012023

OPEN ACCESS

[Polymer Materials for the Heat Recovery](#)

E Kolasińska, P Kolasiński and B Mazurek pg. 123

012024

OPEN ACCESS

[Energy harvesting in high voltage measuring techniques](#)

Paweł Żyłka and Marcin Doliński pg. 128