

2015 IEEE 21st International Symposium for Design and Technology in Electronic Packaging (SIITME 2015)

**Brasov, Romania
22 – 25 October 2015**



**IEEE Catalog Number: CFP1507I-POD
ISBN: 978-1-5090-0333-4**

TABLE OF CONTENTS

TOPIC A – EMERGING TECHNOLOGIES & TRENDS IN ADVANCED PACKAGING, PRINTED ELECTRONICS

PP. 25-30

APPLICATION OF LOCALIZATION FACTOR FOR THE DETECTION OF TIN OXIDATION WITH AFM
Attila Bonyár

PP. 31-35

METAL PARTICLE FILLED, THERMALLY CONDUCTIVE POLYMER COMPOSITES FOR ELECTRONIC PACKAGING APPLICATIONS
Ismail Tavman, Tuba Evgin

PP. 37-40

ADVANCES IN TIME DOMAIN REFLECTOMETRY CHARACTERISATION FOR HIGH SPEED INTERCONNECTS
Dorin Antonovici

PP. 41-44

GUIDELINES ON THERMAL MANAGEMENT SOLUTIONS FOR MODERN PACKAGING TECHNOLOGIES - A REVIEW
Alexandra Fodor, Gabriel Chindris, Dan Pitica, Rajmond János

PP. 45-49

INVESTIGATING MECHANICAL PERFORMANCE OF PLA AND CA BIODEGRADABLE PRINTED CIRCUIT BOARDS
Attila Géczy, Dániel Nagy, István Hajdu, Akos Kmetty, Beata Szolnoki

PP. 51-55

INVESTIGATION OF MECHANICAL PROPERTIES OF THE GENERATED SURFACE STRUCTURES ON A CHALCOGENIDE THIN FILM WITH AFM
Judit Kámán, Attila Bonyár, István Csarnovics, Csaba Cserhádi

TOPIC B – POWER ELECTRONICS AND MICROSYSTEMS PACKAGING

PP. 57-60

STUDY OF THERMAL AGEING OF POLYPROPYLENE FILM CAPACITORS
Martin Horák, Pavel Mach

PP. 61-64

HIGH-FREQUENCY POWER LOSS INVESTIGATION OF A PLANAR FERRITE CORE TRANSFORMER
Constantin Ropoteanu, Paul Svasta, Iulian Buşu

TOPIC C – ASSEMBLY AND MANUFACTURING TECHNOLOGY

PP. 65-70

TYPICAL DEFECTS CAUSED BY UNTYPICAL SITUATIONS FROM ASSEMBLING LINES ANALYSIS

Mihai Branzei, Ioan Plotog, Bogdan Marginean

PP. 71-76

DEPENDENCE OF CONDENSATE THICKNESS ON THE SUBSTRATE PROPERTIES DURING VAPOUR PHASE SOLDERING

Balázs Illés

PP. 77-81

NONDESTRUCTIVE OPTICAL INSPECTION SYSTEM FOR THE DICING STREET QUALITY OF COPPER/LOW-K WAFER

Sheng-feng Lin, Cheng-Huan Chen, Cheng-Yao Lo

PP. 83-86

ASPECTS ON THERMOPHYSICAL PROPERTIES OF INTERCONNECTION STRUCTURES FOR POWER LEDS APPLICATIONS

Mihai Branzei, Marian Vladescu

PP. 89-93

EFFECT OF SOLDER JOINT VOLUME ON ITS SHEAR FRACTURE MODE

Tamás Garami, Oliver Krammer

PP. 95-98

A RESEARCH OF THE CHARACTERISTICS OF MATERIALS USED IN THE CONSTRUCTION OF EDLCs

Rodica Negroiu, Niculina Badalan, Alexandru VASILE, Cristina Marghescu

PP. 99-102

NITROGEN INFLUENCE ON THE REFLOW SOLDERING PROCESS OPTIMIZATION

Nistor Daniel Trip, Adrian Burca, Cornelia Gordan, Adrian Schiop

TOPIC D – DESIGN OF ELECTRONIC CIRCUITS AND SYSTEMS

PP. 103-106

FACE RECOGNITION USING RADON TRANSFORM

Răzvan-Daniel Albu

PP. 107-110

NOVEL MICROWAVE BAND-PASS FILTER WITH DUAL-MODE TRIANGULAR RESONATORS

Muhammed Salah Sadiq Al Kafaji, George Eugeniu Lojewski

PP. 115-120

A FG-MOS IMPLEMENTATION FOR LOW SUPPLY VOLTAGE APPLICATIONS OF TRANSLINEAR NETWORKS FOR POLYNOMIAL APPROXIMATED FUNCTIONS

Elena Doicaru

PP. 121-124

MULTI-MEDIA ENVIRONMENT FOR DEVELOPMENT OF PCB ELECTRONIC MODULES

Mihai Ciprian Dumitrescu, Norocel Codreanu

PP. 125-129

WEEKLY ELECTRONIC PILLS DISPENSER WITH CIRCULAR CONTAINERS

Cristian Farcas, Ionut Ciocan, Niculaie Palaghita, Raul Fizesan

PP. 191-194

WHY THE MOUNTING INDUCTANCE IS IMPORTANT IN DESIGNING A POWER DISTRIBUTION NETWORK?

Raul Fizesan, Ovidiu Pop, Adrian Taut

PP. 131-134

PORTABLE I2C MONITOR AND DEBUGGER

Cristian Grecu, Cosmin Iordache

PP. 135-138

DESIGNING OF MICROCONTROLLER BASED SYRINGE PUMP WITH VARIABLE AND LOW DELIVERY RATES FOR THE ADMINISTRATION OF SMALL VOLUMES

Muhammad Ahmed Khan, Sameed Tehami, Osama Mazhar

PP. 139-142

A REAL-TIME WEBCAM BASED EYE BALL TRACKING SYSTEM USING MATLAB

Osama Mazhar, Taimoor Ali Shah, Muhammad Ahmed Khan, Sameed Tehami

PP. 143-146

HARDWARE AND SOFTWARE DESIGNING OF USB BASED PLUG N PLAY DATA ACQUISITION DEVICE WITH C# AND NATIONAL INSTRUMENTS LABVIEW COMPATIBILITY

Sameed Tehami, Muhammad Ahmed Khan, Osama Mazhar

PP. 147-150

SCADA DEVELOPMENT FOR AN ISLANDED MICROGRID

Enikő Lázár, Radu Etz, Dorin Petreuş, Toma Pătărău, Ionuţ Ciocan

PP. 151-155

BIO-SIGNALS INVESTIGATION PLATFORM FOR ACADEMIC RESEARCH AND EDUCATION LABORATORIES

Alina Marcu, Norocel Codreanu, Dragos Taralunga

PP. 157-160

COMPARATIVE ASSESSMENT OF MAXWELL AND HELMHOLTZ COILS MAGNETIC FIELD FOR BIOTECHNOLOGICAL APPLICATIONS

Bogdan Mihailescu, Marian Velcea, Ioan Plotog

PP. 161-164

PUPIL DETECTION ALGORITHMS FOR EYE TRACKING APPLICATIONS

Alexandru Pasarica, Radu Bozomitu, Vlad Cehan, Robert Gabriel Lupu, Cristian Rotariu

PP. 165-168

CONTRIBUTION TO CHARGING OF BATTERY WITH PULSES

Levente Szabo

PP. 169-173

CREATING AN RS-232 MICROCHIP FOR CONTROLLING THE LYNXMOTION AL5 TYPE ROBOTIC ARMS

Roland Szabo, Aurel Gontean

PP. 175-179

THE DEVELOPMENT PROCESS OF AN UART CHIP ON FPGA FOR DRIVING EMBEDDED DEVICES

Roland Szabo, Aurel Gontean

PP. 181-186

THE INFLUENCE OF CHARGING-DISCHARGING CURRENT ON SUPERCAPACITOR'S STORAGE CAPACITY

Mihai G. Vidrascu

PP. 195-200

AUTOMATIC CHARACTERIZATION OF THE ANGULAR DEPENDENCE OF RFID COMMUNICATIONS

Dan Tudor Vuza, Marian Vladescu

TOPIC E – ELECTRONICS SIMULATION & MODELLING

PP. 201-204

REAL TIME PCB DIAGNOSIS USING FPGA - IMPLEMENTED VIDEO ANALYSIS TOOL

Vasilica A. Berechet, Laurențiu M. Ionescu, Alin Gh. Mazăre, Ioan Liță, Adrian-Ioan I. Lita

PP. 205-208

REAL – TIME SYSTEM FOR SHAPE EXTRACTION FROM AN IMAGE

Laurențiu M. Ionescu, Alin Gh. Mazăre, Vasilica A. Berechet, Ioan Liță, Adrian-Ioan I. Lita

PP. 209-212

COMPENSATION OF THE CONNECTION WIRES INFLUENCE FOR A BEHAVIORAL MODEL OF A POWER BAW FILTER

Ovidiu-Silviu Taus, Florin Constantinescu, Alexandru Gabriel Gheorghe

PP. 213-216

MATHEMATICAL MODEL FOR A QUASI-RESONANT CONVERTER

Ionel Baci, Adrian Taut, Gabriel Chindris, Alexandra Fodor

PP. 217-220

METHOD OF MEASURING AND SORTING COILS USING FREQUENCY SYNTHESIZER

Vlad Cehan, Radu Bozomitu, Eugen Coca

PP. 221-225

COMPARISON BETWEEN FIXED AND SOLAR ORIENTED PV MODULES' ENERGY PRODUCTION USING A SIMPLIFIED PSIM MODEL

Ionuț Ciocan, Cristian Fărcaș, Dorin Petreuş, Niculaie Palaghiță, Enikő Lázár

PP. 227-230

CENTRALIZED SERVER APPLICATION FOR AIR TRANSPORTATION SECURITY SYSTEMS

Claudiu Virgil Banu, Ilona Madalina Costea, Andrei Gabriel Banica, Geanina Silvana Banu

PP. 231-234

MONITORING SYSTEM WITH APPLICATIONS IN AIR TRANSPORT

Claudiu Virgil Banu, Ilona Madalina Costea, Andrei Gabriel Banica, Geanina Silvana Banu

PP. 235-238

COMMUNICATIONS ARCHITECTURE WITH APPLICATIONS ON THE ROAD TRANSPORTATION SYSTEM

Ilona Madalina Costea, Andrei Gabriel Banica, Adrian Paul Tanasa, Claudiu Virgil Banu

PP. 239-244

VIBROGEN - AN EXPERIMENTAL SYSTEM TO STUDY VIBRATION WAVEFORMS GENERATED BY FAULTS UNDER ARBITRARY LOAD CONDITIONS

Silviu Epure, Bogdan Dumitrascu, Dorel Aiordachioaie

PP. 245-248

ENERGY-SAVING STRATEGIES IN MONITORING FOR WIRELESS SENSOR NETWORKS

Yassin HAMED, Marius ROSU

PP. 249-252

COMPARISON BETWEEN THE CURRENT FEEDBACK AMPLIFIER AND THE MODERN VOLTAGE FEEDBACK AMPLIFIER

Iulia Suciu, Petre Lucian Ogrutan, Gheorghe Pana

PP. 253-256

MATHEMATICAL ANALYSIS TO CONTROL POWER TRANSFER IN RESONANT POWER CONVERTERS

Adrian Taut, Mihai Daraban, Ovidiu Pop, Gabriel Chindris, Raul Fizesan

PP. 257-262

STUDY CONCERNING THE OPTIMIZATION OF THE FUZZY CONTROLLERS USED FOR THE RESONANT INVERTERS COMMAND

Marin T. Tomșe, M. I. Gordan

TOPIC F – ELECTRONICS APPLICATIONS AND AUTOMOTIVE ELECTRONICS

PP. 263-266

CONSTANT CURRENT VERSUS PULSE CURRENT FOR POWER SUPPLIES ON HIGH POWER LED

Niculina Badalan, Paul Svasta, F. Drăghici

PP. 267-272

ELECTRONICS FOR ELECTRO-HYDRAULIC ACTUATION SYSTEM

Marian Blejan, Ioana Ilie, Corneliu Cristescu

PP. 273-276

EEG PATTERN RECOGNITION TECHNIQUES REVIEW

Szilard Bularka, Aurel Gontean

PP. 277-280

A PORTABLE DEVICE FOR INTERCEPTING AND RETRANSMISSION OF INFRARED MODULATED SIGNALS

Costel Cherciu, Claudiu Ionut Cherciu, Dumitru-Iulian Nastac

PP. 281-285

A LOW-COST CAR VIBRATION ACQUISITION SYSTEM

Claudiu Chiculita, Laurentiu Frangu

PP. 291-295

LOW COMPUTATIONAL METHOD FOR SIREN DETECTION

Robert Dobre, Valentin Niță, Amelia Ciobanu, Cristian Negrescu, Dumitru Stanomir

PP. 297-300

ANALYSIS OF CURRENT CARRYING CAPACITY OF SILVER-BASED CONDUCTIVE PASTES FOR PCB REPAIR

Andrei Drumea, Cristina Ioana Marghescu

PP. 303-306

ACCURATE MODELING OF SUPERCAPACITORS FOR DC OPERATION REGIME

Ciprian Ionescu, Alexandru Vasile, Rodica Negroiu

PP. 315-318

MODELLING AND IMPLEMENTATION OF INTELLIGENT SENSOR NETWORKS WITH APPLICATIONS IN EMERGENCY SITUATIONS MANAGEMENT

Claudiu Lung, Sebastian Sabou, Attila Buchman

PP. 319-322

INTO GENERATING TRUE RANDOM NUMBERS - A PRACTICAL APPROACH USING FPGA

Andrei Marghescu, Paul Svasta

PP. 323-328

HIGH SPEED AND SECURE VARIABLE PROBABILITY PSEUDO/TRUE RANDOM NUMBER GENERATOR USING FPGA

Andrei Marghescu, Paul Svasta, Simion Emil

PP. 329-334

INTELLIGENT SYSTEM WITH REMOTE TRANSMISSION FOR MONITORING TELECOMMUNICATION EQUIPMENT PARAMETERS

Edmund Julien Spatariu, Marius Constantin Popescu, Antoanela Naaji

PP. 335-339

ACTIVITY RECOGNITION USING AN E-TEXTILE DATA ACQUISITION SYSTEM

Ioan Orha, Stefan Oniga

PP. 345-348

PSEUDO-RANDOM GENERATOR USING PUF CIRCUITS AND SALSA STREAM CIPHER

Alexandra Stanciu, Adrian Virgil Craciun, Florin Dumitru Moldoveanu

PP. 349-352

CHALLENGES AND SOLUTIONS FOR ADVANCED SENSING OF WATER INFRASTRUCTURES IN URBAN ENVIRONMENTS

George Suciu, Adela Vintea, Stefan Ciprian Arseni, Cristina Butca, Victor Suciu

PP. 353-356

RESEARCH AND DEVELOPMENT OF A SYSTEM FOR MEASURING ELECTRICAL PARAMETERS OF EDLC

Alexandru VASILE, Rodica Negroiu, Niculina Badalan

TOPIC G – OPTOELECTRONICS & ADVANCED COMMUNICATION PACKAGING

PP. 357-360

OPTOELECTRONIC MODULE FOR QUANTIFICATION OF BIOMARKERS BASED ON FLUORESCENCE

Marian Vladescu, Valentin Feies, Paul Schiopu, Alexandru Craciun, Neculai Grosu

TOPIC H – APPLIED RELIABILITY

PP. 361-365

ASPECTS OF PCB AUTOMATED QUALITY CONTROL USING POTENTIAL FUNCTION BASED CLUSTERING ALGORITHMS

Viorel Nicolau

PP. 367-372

ELECTRICAL BEHAVIOUR OF FLIP-CHIP BONDED THIN SILICON CHIP-ON-FOIL ASSEMBLY DURING BENDING

Nagarajam Palavesam, Detlef Bonfert, Waltraud Hell, Christof Landesberger, Horst Gieser, Christoph Kutter, Karlheinz Bock

PP. 373-376

WHISKER FORMATION FROM SNAGCu ALLOYS AND TIN PLATINGS - REVIEW ON THE LATEST RESULTS

Reka Batorfi, Balázs Illés, Oliver Krammer

PP. 377-380

ELECTROCHEMICAL MIGRATION OF AG IN Na₂SO₄ ENVIRONMENT

Bálint Medgyes, Sándor Ádám, Béla Szikora, László Gál, Patrik Tamási

TOPIC I – CHALLENGE IN GLOBAL EDUCATION

PP. 381-386

USING GITHUB IN THE CLASSROOM - A COLLABORATIVE LEARNING EXPERIENCE

Csaba-Zoltán Kertész

PP. 387-392

EMC EDUCATION WITH ENVIRONMENTAL AND ELECTRONICS TECHNOLOGY ORIENTATION

Petre Lucian Ogrutan, Cornel Stanca, Lia Elena Aciu

PP. 393-396

AD-HOC LAB COMPUTER NETWORK CONFIGURATION USING REMOTE RESOURCES

Titus Constantin Balan, Dan Nicolae Robu, Florin Sandu

PP. 397-401

GRAPHICAL SYSTEM DESIGN APPROACH IN PHOTOVOLTAIC ENERGY LABORATORIES

Petru A. Cotfas, Daniel T. Cotfas

PP. 403-408

AN EDUCATIONAL TOOL TO ANALYZE THE ELECTROMAGNETIC RADIATION

Mihai Daraban, Dan Pitica, Adrian Taut

PP. 409-412

SEMANTIC DATA AGGREGATION IN HETEROGENEOUS LEARNING ENVIRONMENTS

Florin Sandu, Cosmin Costache, Titus Constantin Balan