

# **2012 9th International Multi-Conference on Systems, Signals and Devices**

**(SSD 2012)**

**Chemnitz, Germany  
20 – 23 March 2012**

**Volume 1  
Pages 1-313**



**IEEE Catalog Number: CFP1222E-PRT  
ISBN: 978-1-4673-1590-6**

# TABLE OF CONTENTS

## CONTENTS (VOLUME I)

### KEYNOTE LECTURES

|   |    |
|---|----|
| <b>CONTROL AND AUTOMATION ENGINEERING EDUCATION: COMBINING PHYSICAL, REMOTE AND VIRTUAL LABS</b> .....  | 1  |
| <i>C. Pereira, S. Paladini, F. Schaf</i>  |    |
| <b>INCREASING FLEXIBILITY AND FUNCTIONALITY IN INDUSTRIAL PROCESS CONTROL - THE HELPFUL USAGE OF MODELS, SERVICES AND CYBERNETIC PRINCIPLES</b> ..... | 11 |
| <i>U. Epple</i>   |    |

### PAPERS

|   |     |
|---|-----|
| <b>EVALUATION OF FRACTIONAL RESIDUAL</b> .....  | 15  |
| <i>A. Aribi, M. Aoun, S. Najar, M. Abdelkrim</i>  |     |
| <b>MPC-BASED CONTROLLER FOR AUGMENTED BOILER-NOX MODEL</b> .....  | 21  |
| <i>S. Minhajullah, S. Ferik, M. Elshafei, M. Habib</i>  |     |
| <b>DISTRIBUTED TEMPERATURE CONTROL FOR SOLAR ENERGY SYSTEM: AN LMI- APPROACH</b> .....  | 27  |
| <i>A. Elrayyah, S. Ferik, T. Othman, M. Khan</i>  |     |
| <b>DISCRETE PREDICTIVE SLIDING MODE CONTROL OF UNCERTAIN SYSTEMS</b> .....  | 33  |
| <i>B. Houda, N. Said</i>  |     |
| <b>USER CENTERED DEVELOPMENT OF FLEXIBLE USER INTERFACES IN APPLICATION SYSTEMS</b> .....   | 39  |
| <i>F. Motlagh, P. Gohner</i>  |     |
| <b>A ROBUST MODEL PREDICTIVE CONTROL USING A FEEDFORWARD STRUCTURE FOR A HYBRID HYDRAULIC PIEZO ACTUATOR IN CAMLESS INTERNAL COMBUSTION ENGINES</b> ..... | 45  |
| <i>P. Mercorelli, N. Werner, U. Becker, H. Harndorf</i>   |     |
| <b>LINEAR TIME-VARYING FLATNESS-BASED CONTROL OF ANTI-LOCK BRAKE SYSTEM (ABS)</b> .....   | 51  |
| <i>M. Abdallah, M. Ayadi, F. Rotella, M. Benrejeb</i>   |     |
| <b>TRAINING A NEURAL OBSERVER USING A HYBRID APPROACH</b> .....   | 57  |
| <i>R. Loukil, M. Chtourou, T. Damak</i>   |     |
| <b>STORAGE/RETRIEVAL OF INACCURATELY PLACED OBJECTS USING ROBOT SYSTEM AND VISION/FORCE FEEDBACK</b> .....  | 62  |
| <i>M. Bdiwi, J. Suchy</i>   |     |
| <b>FUZZY LOGIC DESIGN FOR TELE-CONTROL ELECTRICAL VEHICLE</b> .....   | 68  |
| <i>M. Boukhnifer, A. Chaibet, T. Azib, C. Larouci</i>   |     |
| <b>AN EFFECTIVE FUZZY-DVZ CONTROLLER FOR AN OMNIDIRECTIONAL MOBILE ROBOT</b> .....  | 74  |
| <i>L. Amouri, C. Novales, M. Jallouli, G. Poisson, N. Derbel</i>  |     |
| <b>TELE-CONTROL ELECTRICAL VEHICLE SYSTEM USING WAVE VARIABLES</b> .....  | 80  |
| <i>M. Boukhnifer, A. Chaibet, T. Azib, C. Larouci</i>   |     |
| <b>ROBUST FILTER DESIGN FOR LINEAR SYSTEMS WITH PARAMETRIC UNCERTAINTIES VIA UNRELIABLE TRANSMISSION CHANNELS</b> .....                                   | 86  |
| <i>M. Mahmoud</i>   |     |
| <b>MODEL REFERENCE ROBUST BACKSTEPPING DESIGN FOR PNEUMATIC DRIVEN BALL SCREW TABLE SYSTEM</b> .....  | 92  |
| <i>C. Lu, Y. Hwang</i>  |     |
| <b>TRACK FOLLOWING PROBLEM OF A VCM ACTUATOR SERVO SYSTEM FOR HARD DISC DRIVES USING PREDICTIVE CONTROL</b> .....   | 98  |
| <i>M. Meziou, J. Ghommam, N. Derbel</i>   |     |
| <b>AN OVERVIEW OF THE ROBUST APPROACHES APPLIED FOR 2D VISUAL SERVOING</b> .....  | 105 |
| <i>H. Abidi, H. Mekki, K. Kaaniche, M. Chtourou</i>   |     |

|   |     |
|---|-----|
| <b>A NEW SLIDING SURFACE FOR DISCRETE SECOND ORDER SLIDING MODE CONTROL OF TIME DELAY SYSTEMS</b> .....   | 111 |
| <i>A. Nizar, N. Said</i>  |     |
| <b>MODIFIED BACKSTEPPING CONTROL OF QUADROTOR</b> .....   | 117 |
| <i>A. Saif, M. Dhaifullah, M. Al-Malki, M. Shafie</i>   |     |
| <b>H-INFINITY ROBUST CONTROL OF 3-DOF HELICOPTER</b> .....  | 123 |
| <i>M. Boukhnifer, A. Chaibet, C. Larouci</i>  |     |
| <b>A SIMPLE VISUAL NAVIGATION SYSTEM FOR AN UAV</b> .....   | 129 |
| <i>T. Krajnik, M. Nitsche, S. Pedre, L. Preucil, M. Mejail</i>  |     |
| <b>COST-EFFICIENT MONO-CAMERA TRACKING SYSTEM FOR A MULTIROTOR UAV AIMED FOR HARDWARE-IN-THE-LOOP EXPERIMENTS</b> .....                                       | 135 |
| <i>S. Lange, P. Protzel</i>   |     |
| <b>COOPERATIVE <math>\mu</math>UAV-UGV AUTONOMOUS INDOOR SURVEILLANCE</b> .....   | 141 |
| <i>M. Saska, T. Krajnik, L. Preucil</i>   |     |
| <b>MOTION ESTIMATION FOR AUTONOMOUS QUADROPTER INDOOR FLIGHT</b> .....  | 147 |
| <i>D. Wunschel, S. Lange, P. Protzel</i>  |     |
| <b>DESIGN AND EVALUATION OF AN AUGMENTED VISION SYSTEM FOR HUMAN-ROBOT CO-OPERATION IN COGNITIVE AUTOMATED ASSEMBLY CELLS</b> .....                           | 153 |
| <i>B. Odenthal, M. Mayer, W. Kabuss, C. Schlick</i>   |     |
| <b>AD HOC FIELD DEVICE INTEGRATION USING DEVICE PROFILES, CONCEPTS FOR AUTOMATED CONFIGURATION AND WEB SERVICE TECHNOLOGIES</b> .....                         | 159 |
| <i>S. Hodek, J. Schlick</i>   |     |
| <b>USABILITY CHALLENGES IN THE DESIGN WORKFLOW OF REUSABLE PLC SOFTWARE FOR MACHINE AND PLANT AUTOMATION</b> .....  | 165 |
| <i>S. Braun, M. Obermeier, B. Vogel-Heuser</i>  |     |
| <b>COMPARISON OF ENGINEERING RESULTS WITHIN DOMAIN SPECIFIC LANGUAGES REGARDING INFORMATION CONTENTS AND INTERSECTIONS</b> .....                              | 171 |
| <i>T. Jager, A. Fay, T. Wagner, U. Lowen</i>  |     |
| <b>CONCEPTS OF SERVICE-ORIENTATION FOR PROCESS CONTROL ENGINEERING</b> .....  | 177 |
| <i>H. Mersch, U. Epple</i>  |     |
| <b>MODELING OF NETWORKED AUTOMATION SYSTEMS FOR SIMULATION AND MODEL CHECKING OF TIME BEHAVIOR</b> .....  | 183 |
| <i>B. Vogel-Heuser, J. Folmer, G. Frey, L. Liu, H. Hermanns, A. Hartmanns</i>   |     |
| <b>COMPUTING DEPENDENT INDUSTRIAL ALARMS FOR ALARM FLOOD REDUCTION</b> .....  | 188 |
| <i>J. Folmer, B. Vogel-Heuser</i>   |     |
| <b>MODELING AND IDENTIFICATION OF TEMPERATURE FIELDS IN MULTI-ZONE-FURNACES</b> .....   | 194 |
| <i>D. Brauer, A. Rehkopf</i>  |     |
| <b>REALTIME PCI EXPRESS MONITORING FOR SELF ADAPTIVE RECONFIGURABLE SYSTEMS</b> .....   | 200 |
| <i>M. Rueckauer, J. Meyer, T. Schubert, M. Hubner, D. Scheurer, J. Becker</i>   |     |
| <b>A HIGH-GAIN OBSERVER VS. ALGEBRAIC DERIVATIVE METHODS FOR TRACK ESTIMATION</b> .....   | 206 |
| <i>R. Huber, S. Zipser, S. Wagner, K. Robenack</i>  |     |
| <b>SET MEMBERSHIP PARAMETER ESTIMATION OF LINEAR FRACTIONAL SYSTEMS USING PARALLELOTOPES</b> .....  | 212 |
| <i>M. Amairi, M. Aoun, S. Najjar, M. Abdelkrim</i>  |     |
| <b>ON THE MODEL IDENTIFICATION OF AN INCUBATOR BASED ON GENETIC ALGORITHMS</b> .....  | 218 |
| <i>Y. Miladi, M. Feki, N. Derbel</i>  |     |
| <b>VARIABLE STRUCTURE NEURAL NETWORKS FOR ONLINE IDENTIFICATION OF CONTINUOUS TIME DYNAMICAL SYSTEMS USING EVOLUTIONARY ARTIFICIAL POTENTIAL FIELDS</b> ..... | 224 |
| <i>H. Mekki, M. Chtourou</i>  |     |
| <b>FPGA SYSTEM-ON-CHIP SOLUTION FOR A FIELD ORIENTED HYBRID STEPPER MOTOR CONTROL</b> .....   | 230 |
| <i>N. Dahm, M. Huebner, J. Becker</i>   |     |
| <b>OPTIMAL CONTROL FOR A CLASS OF 2-D SHIFT VARIANT SYSTEMS</b> .....   | 236 |
| <i>H. Tolve, M. Shafiee</i>   |     |
| <b>A SIMPLE PI CONTROLLER TUNING RULE FOR SENSOR ENERGY EFFICIENCY WITH LEVEL-CROSSING SAMPLING</b> .....   | 243 |
| <i>B. Hensel, J. Ploennigs, V. Vasyutynskyy, K. Kabitzsch</i>   |     |

|   |     |
|---|-----|
| <b>DIRECT TORQUE CONTROL WITH ANN SPEED CONTROLLER BASED ON KALMAN FILTER FOR PMSM</b> .....                          | 249 |
| <i>F. Hamidia, M. Boucherit, A. Larabi, M. Bouhedda</i>   |     |
| <b>SYNTHESIS OF A NONLINEAR CONTROL SYSTEM FOR DISTURBANCE REJECTION IN PERIODIC PROCESS</b> .....                    | 254 |
| <i>C. Samia, J. Houssem</i>   |     |
| <b>OPTIMAL TARGETING IN CHAOS CONTROL</b> .....   | 260 |
| <i>U. Vogl</i>  |     |
| <b>NON-MODEL BASED ADAPTIVE CONTROL OF ELECTRO-HYDRAULIC SERVO SYSTEMS USING PREFILTER INVERSION</b> .....            | 266 |
| <i>M. Ahmed, N. Lachhab, F. Svaricek</i>  |     |
| <b>STRUCTURE MATTERS - SOME NOTES ON HIGH GAIN OBSERVER DESIGN FOR NONLINEAR SYSTEMS</b> .....                        | 272 |
| <i>K. Robenack</i>  |     |
| <b>GENERATION OF STABLE LIMIT CYCLES WITH PRESCRIBED FREQUENCY AND AMPLITUDE VIA POLYNOMIAL FEEDBACK</b> .....        | 279 |
| <i>C. Knoll, K. Robenack</i>  |     |
| <b>ON THE STABILITY OF OPTIMAL CONTROLLED SYSTEMS WITH SDRE APPROACH</b> .....  | 285 |
| <i>S. Elloumi, I. Sansa, N. Braiek</i>  |     |
| <b>SYNCHRONIZATION OF DISCRETE-TIME HYPERCHAOTIC MAPS BASED ON AGGREGATION TECHNIQUE FOR ENCRYPTION</b> .....         | 290 |
| <i>F. Linda, S. Hammami, M. Benrejeb, P. Borne</i>  |     |
| <b>STABILIZING SLIDING MODE-MULTIMODEL CONTROL FOR NONLINEAR SYSTEMS SIMULATION ON AN AIRCRAFT: AIRBUS A340</b> ..... | 296 |
| <i>A. Rhif, Z. Kardous, N. Braiek</i>   |     |
| <b>SLIDING MODE POSITION CONTROL FOR AUTOMOTIVE DRY CLUTCH SYSTEM</b> .....   | 302 |
| <i>R. Knoblich, C. Guhmann, J. Beilharz</i>   |     |
| <b>CRANE CONTROL BY FLATNESS</b> .....  | 308 |
| <i>H. Souliem, H. Mekki, N. Derbel</i>  |     |

## **CONTENTS (VOLUME II)**

### **KEYNOTE LECTURES**

|   |     |
|---|-----|
| <b>ON THE THEORY AND APPLICATION OF MAGNETIC BEARINGS</b> ..... | 314 |
| <i>S. Techn, P. Budig</i>                                       |     |

### **PAPERS**

|  |     |
|--|-----|
| <b>HVDC TRANSMISSION TECHNOLOGY FOR SUSTAINABLE POWER SUPPLY</b> .....   | 323 |
| <i>J. Dorn, H. Gambach, D. Retzmann</i>  |     |
| <b>COMPARISON OF IGCT AND IGBT FOR THE USE IN THE MODULAR MULTILEVEL CONVERTER FOR HVDC APPLICATIONS</b> .....     | 329 |
| <i>M. Buschendorf, J. Weber, S. Bernet</i>   |     |
| <b>ANALYSIS OF ARM CURRENT HARMONICS IN MODULAR MULTILEVEL CONVERTERS WITH MAIN-CIRCUIT FILTERS</b> .....          | 335 |
| <i>K. Ilves, S. Norrga, L. Harnefors, H. Nee</i>   |     |
| <b>HVDC SUPERGRIDS WITH MODULAR MULTILEVEL CONVERTERS - THE POWER TRANSMISSION BACKBONE OF THE FUTURE</b> .....    | 341 |
| <i>N. Ahmed, S. Norrga, H. Nee, A. Haider, D. Hertem, L. Zhang, L. Harnefors</i>                                   |     |
| <b>PERFORMANCE EVALUATION OF A PHOTOVOLTAIC SYSTEM WITH BATTERY STORAGE IN GHARDAIA SITE (SOUTH ALGERIA)</b> ..... | 348 |
| <i>S. Semaoui, A. Hadjarab, S. Bacha, B. Azoui</i>   |     |
| <b>INVESTIGATIONS ON LIFE ESTIMATION OF ULTRACAPACITORS USING TIME DOMAIN METHODS</b> .....                        | 354 |
| <i>B. Veit, T. Hempel, A. Pohl, M. Bodach</i>  |     |
| <b>SHORT-CIRCUIT AND OVERCHARGE BEHAVIOUR OF SOME LITHIUM ION BATTERIES</b> .....                                  | 358 |
| <i>C. Kallfaß, C. Hoch, A. Hilger, I. Manke</i>  |     |

|   |            |
|---|------------|
| <b>CALCULATION OF THE DISTRIBUTION OF RELAXATION TIMES FOR CHARACTERIZATION OF THE DYNAMIC BATTERY BEHAVIOR .....</b>                             | <b>363</b> |
| <i>P. Buschel, U. Troltzsch, O. Kanoun</i>  |            |
| <b>PHOTOVOLTAIC ENERGY HARVESTING FOR HYBRID/ELECTRIC VEHICLES.....</b>   | <b>366</b> |
| <i>M. Nikolic, H. Zimmermann</i>  |            |
| <b>MODEL CONCEPT OF A DUAL ENERGY STORAGE SYSTEM FOR ELECTRIC MOBILITY APPLICATIONS.....</b>  | <b>373</b> |
| <i>M. Wittig, S. Slawinski, B. Veit, L. Zacharias, M. Bodach</i>  |            |
| <b>END-OF-LINE TESTING AND FORMATION IN LI-ION BATTERY ASSEMBLY LINES.....</b>  | <b>378</b> |
| <i>M. Wolter, G. Fauser, C. Bretthauer, M. Roscher</i>  |            |
| <b>ROBUST HIGH SPEED CONTROL ALGORITHM FOR PMSM SENSORLESS DRIVES .....</b>   | <b>381</b> |
| <i>F. Aymen, H. Kraiem, S. Lassaad</i>  |            |
| <b>SENSORLESS OUTPUT FEEDBACK CONTROLLER USING ADAPTIVE INTERCONNECTED OBSERVER FOR IMS WITH LOAD TORQUE AND ROTOR RESISTANCE.....</b>            | <b>387</b> |
| <i>H. Chehimi, S. Said, F. Msahli</i>   |            |
| <b>MODAL ANALYSIS OF CRACKED WIND TURBINES USING THE FINITE ELEMENT METHOD.....</b>   | <b>393</b> |
| <i>B. Aydi, M. Hassena, S. Choura</i>   |            |
| <b>DYNAMIC ANALYSIS TOOL FOR THE DESIGN OF TUBULAR LINEAR PERMANENT MAGNET MACHINES .....</b>   | <b>399</b> |
| <i>X. Dong, F. Papini, B. Tamma</i>   |            |
| <b>SECOND ORDER SLIDING MODE INDUCTION MOTOR CONTROL WITH A NEW LYAPUNOV APPROACH .....</b>   | <b>404</b> |
| <i>H. Benderradji, A. Benamor, L. Chrifi-Alaoui, P. Bussy, A. Makout</i>  |            |
| <b>FINITE ELEMENT ANALYSIS OF THE CONTACT PROBLEM BETWEEN GRAPHITEBRUSHES AND -SLIP RINGS IN DOUBLE-FED ASYNCHRO-NOUS GENERATORS.....</b>         | <b>410</b> |
| <i>D. Houenouvo, W. Hofmann</i>   |            |
| <b>INCREASING THE TORQUE DENSITY OF PERMANENT-MAGNET SYNCHRONOUS MACHINES USING INNOVATIVE MATERIALS AND WINDING TECHNOLOGIES.....</b>            | <b>416</b> |
| <i>M. Lindner, P. Brauer, R. Werner</i>   |            |
| <b>ON THE PERFORMANCES INVESTIGATION AND IRON LOSSES COMPUTATION OF AN INSET SURFACE MOUNTED PERMANENT MAGNET MOTOR .....</b>                     | <b>423</b> |
| <i>A. Mansouri, H. Trabelsi</i>   |            |
| <b>A SIMPLIFIED ALGORITHM FOR PREDICTING POWER CYCLING LIFETIME IN DIRECT DRIVE WIND POWER SYSTEMS.....</b>                                       | <b>428</b> |
| <i>S. D'Arco, T. Undeland, M. Bohllander, J. Lutz</i>   |            |
| <b>DESIGN CRITERIA AND LEVELIZED COSTS OF ELECTRICITY FOR PHOTOVOLTAIC POWER PLANTS AT DIFFERENT GLOBAL LOCATIONS.....</b>                        | <b>434</b> |
| <i>R. Knorr</i>   |            |
| <b>STATE FEEDBACK CONTROL OF A THREE LEVEL GRID-CONNECTED PHOTOVOLTAIC INVERTER .....</b>   | <b>440</b> |
| <i>D. Lalili, A. Mellit, N. Lourci, B. Medjahed, C. Boubakir</i>  |            |
| <b>A METHOD FOR EVALUATING SHADING LOSSES INVOLVED IN A GC-BIPV USING REAL DATA.....</b>  | <b>446</b> |
| <i>M. Drif, P. Perez, J. Aguilera, A. Mellit</i>  |            |
| <b>SIMPLIFIED MODELLING OF WIND FARMS FOR VOLTAGE DIP TRANSIENTS.....</b>   | <b>449</b> |
| <i>K. Kilani, M. Elleuch</i>  |            |
| <b>SURGE CURRENT CAPABILITY OF IGBTs .....</b>  | <b>455</b> |
| <i>T. Basler, J. Lutz, R. Jakob, T. Bruckner</i>  |            |
| <b>INTEGRATED BICMOS CONTROL CIRCUITS FOR LOW-POWER CURRENT-MODE DC-DC BOOST CONVERTER .....</b>  | <b>461</b> |
| <i>C. Lee, M. Gendensuren, K. Cho, N. Kim</i>   |            |
| <b>SLIDING MODE CONTROLLER FOR BUCK DC-DC CONVERTER .....</b>   | <b>467</b> |
| <i>M. Bensaada, A. Stambouli, M. Bekhti, S. Krachai, L. Boukhris, A. Bellar, M. Mebrek, B. Nasri</i>  |            |
| <b>APPLICATION RESEARCH BASED ON MODERN-TECHNOLOGY FOR TRANSFORMER HEALTH INDEX ESTIMATION.....</b>   | <b>473</b> |
| <i>H. Malik, A. Azeem, R. Jarial</i>  |            |
| <b>MODELING AND SIMULATION OF A PWM RECTIFIER INVERTER INDUCTION MOTOR DRIVE SYSTEM IMPLEMENTING SPEED SENSORLESS DIRECT VECTOR CONTROL .....</b> | <b>480</b> |
| <i>S. Khather</i>   |            |

|  |            |
|--|------------|
| <b>IMPROVEMENT OF START UP TORQUE OF THREE PHASE INDUCTION MOTOR OPERATING WITH SINGLE PHASE SUPPLY .....</b>                                | <b>486</b> |
| <i>M. Laabidi, B. Rebhi, M. Elleuch</i>  |            |
| <b>INDEPENDENT SPEED SENSORLESS CONTROL OF DUAL PARALLEL PMSM BASED ON FIVE-LEG INVERTER .....</b>   | <b>492</b> |
| <i>Z. Ibrahim, J. Lazi, M. Sulaiman</i>  |            |
| <b>PERFORMANCE INVESTIGATION FOR INDEPENDENT SPEED SENSORLESS CONTROL OF DUAL-PMSM DRIVES .....</b>  | <b>498</b> |
| <i>J. Lazi, Z. Ibrahim, M. Sulaiman, R. Mustafa</i>  |            |
| <b>INFLUENCE OF PARASITIC CAPACITIVE CURRENTS ON CONDUCTED EMISSIONS OF POWER CONVERTERS .....</b>   | <b>504</b> |
| <i>J. Bauch, S. Schulz, A. Lindemann</i>   |            |
| <b>A NONLINEAR VOLTAGE CONTROLLER USING T-S FUZZY MODEL FOR MULTIMACHINE POWER SYSTEMS .....</b>   | <b>510</b> |
| <i>A. Abbadi, D. Boukhetala, L. Nezi, A. Kouzou</i>  |            |
| <b>COMPARATIVE INVESTIGATION ON POWER GRID PERTURBATIONS CAUSED BY DC-LINK CONVERTERS AND MATRIX CONVERTERS .....</b>                        | <b>518</b> |
| <i>A. Schramm, H. Lanfer, J. Petzoldt, U. Radel</i>  |            |
| <b>ASSESSMENT OF MAGNETIC FIELD EXPOSURE OF HUMANS BASED ON CALCULATION OF THE RESULTING ELECTRIC FIELD PARAMETERS IN BODY TISSUES .....</b> | <b>526</b> |
| <i>S. Forster, R. Dobbelin, A. Lindemann</i>   |            |
| <b>THREE LEVEL FAULT TOLERANT DTC CONTROL FOR INDUCTION MACHINE DRIVES .....</b>   | <b>532</b> |
| <i>H. Abdelghani, A. Abdelghani, I. Slama-Belkhdja</i>   |            |
| <b>OPTIMIZING UPFC PARAMETERS VIA TWO SWARM ALGORITHMS SYNERGY .....</b>   | <b>538</b> |
| <i>S. Saadi, A. Guessoum, M. Bettayeb, M. Elaguab</i>  |            |
| <b>SPEED CONTROL OF LINEAR INDUCTION MOTOR CONSIDERING END-EFFECTS COMPENSATION USING ROTOR TIME CONSTANT ESTIMATION .....</b>               | <b>544</b> |
| <i>B. Bessaih, A. Boucheta, I. Bousserhane, A. Hazzab, P. Sicard</i>   |            |
| <b>UNKNOWN INPUTS OBSERVER FOR ENERGY MANAGEMENT IN AN ELECTRIC TRACTION SYSTEM .....</b>  | <b>551</b> |
| <i>F. Bejaoui, C. Mechmeche, B. Hadjbraiek, H. Yahouni, H. Hammouri</i>  |            |
| <b>DESIGN FLOW OPTIMIZATION FOR CONTROLLER ELECTRONICS IN ALTERNATIVE ELECTRICAL POWER SYSTEMS USING VHDL-AMS .....</b>                      | <b>557</b> |
| <i>S. Slawinski, L. Zacharias, M. Bodach, T. Hempel, B. Veit</i>   |            |

### **CONTENTS (VOLUME III)**

#### **PAPERS**

|   |            |
|---|------------|
| <b>A DOUBLE-MIXING SAMPLING RECEIVER CONCEPT TO ENABLE GNSS-L1/L5 DOUBLE-BAND RECEPTION .....</b>                               | <b>560</b> |
| <i>C. Schulz, C. Duerdodt, M. Hammes, R. Kreienkamp</i>   |            |
| <b>GSM MOBILE PHONE LOCALIZATION USING TIME DIFFERENCE OF ARRIVAL AND ANGLE OF ARRIVAL ESTIMATION .....</b>                     | <b>564</b> |
| <i>L. Zimmermann, A. Goetz, G. Fischer, R. Weigel</i>   |            |
| <b>CENTRALIZED SPRING-BASED LOCALIZATION ALGORITHM FOR LARGE SCALE WIRELESS SENSOR NETWORKS .....</b>                           | <b>571</b> |
| <i>A. Johansson, C. Roßberg, U. Heinkel</i>   |            |
| <b>INFLUENCES ON THE INDOOR POSITIONING ACCURACY OF NARROWBAND TDOA SIGNALS .....</b>   | <b>577</b> |
| <i>J. Renner, H. Zollner, T. Bohnke, B. Voß</i>   |            |
| <b>IMPROVING THE FILTERING PERFORMANCE OF THE BDND ALGORITHM IN IMPULSE NOISE REMOVAL .....</b>                                 | <b>583</b> |
| <i>I. Jafar, R. Na'mneh</i>   |            |
| <b>NEUTRON RADIOGRAPHY IMAGES RESTORATION ON FPGA EMBEDDED IMPLEMENTATION .....</b>   | <b>589</b> |
| <i>S. Saadi, A. Guessoum, M. Bettayeb</i>   |            |
| <b>DESIGN AND IMPLEMENTATION OF A FIXED-POINT RADIX-4 FFT OPTIMIZED FOR LOCAL POSITIONING IN WIRELESS SENSOR NETWORKS .....</b> | <b>595</b> |
| <i>A. Ferizi, B. Hoehner, M. Jung, G. Fischer, A. Koelpin</i>   |            |

|   |     |
|---|-----|
| <b>AN EVIDENCE THEORY SUPPORTED EXPECTATION-MAXIMIZATION APPROACH FOR SONAR IMAGE SEGMENTATION</b> .....                  | 599 |
| <i>T. Fei, D. Kraus</i>   |     |
| <b>SC-FDE V-BLAST SYSTEM CONCEPT FOR MIMO OVER SATELLITE WITH ANTENNA MISALIGNMENT</b> .....                              | 605 |
| <i>R. Schwarz, A. Knopp, B. Lankl</i>   |     |
| <b>SMART WIRELESS SUB-METERING</b> .....  | 613 |
| <i>R. Sollacher, T. Jacob, F. Derbel</i>  |     |
| <b>AN EXTENSIBLE PLATFORM FOR SMART HOME SERVICES</b> .....   | 619 |
| <i>M. Gotze, W. Kattaneq, R. Peukert</i>  |     |
| <b>A SURVEY FOR SELF-HEALING ARCHITECTURES AND ALGORITHMS</b> .....   | 625 |
| <i>I. Al-oqily, S. Bani-Mohammad, B. Subaih, J. Alshaer</i>   |     |
| <b>SMART HOME SERVICES - INTEGRATED INFRASTRUCTURE AND PROVIDED SERVICES</b> .....  | 630 |
| <i>M. Oswald, G. Weiß, F. Schnellhardt</i>  |     |
| <b>PROBABILISTIC SHORT RANGE RADAR DATA FUSION</b> .....  | 635 |
| <i>E. Richter, F. Preckwinkel, G. Wanielik</i>  |     |
| <b>CAR-TO-CAR COMMUNICATION FOR ACCURATE VEHICLE LOCALIZATION - THE COVEL APPROACH</b> .....                              | 642 |
| <i>M. Obst, N. Mattern, R. Schubert, G. Wanielik</i>  |     |
| <b>CO-OPERATIVE VEHICLE LOCALIZATION ALGORITHM - EVALUATION OF THE COVEL APPROACH</b> .....                               | 648 |
| <i>N. Mattern, M. Obst, R. Schubert, G. Wanielik</i>  |     |
| <b>3D ENVIRONMENT MODELING FOR GPS MULTIPATH DETECTION IN URBAN AREAS</b> .....   | 653 |
| <i>S. Bauer, M. Obst, G. Wanielik</i>   |     |
| <b>TOWARDS ROBUST GRAPHICAL MODELS FOR GNSS-BASED LOCALIZATION IN URBAN ENVIRONMENTS</b> .....                            | 658 |
| <i>N. Sunderhauf, P. Protzel</i>  |     |
| <b>MODELING AND OPTIMIZING ULTRA WIDEBAND ANTENNAS FOR MICROWAVE BREAST CANCER DETECTION</b> .....                        | 664 |
| <i>A. Shaheen, K. Quboa</i>   |     |
| <b>CAVITY PREPARATION USING A NAVIGATED CONTROLLED ER:YAG LASER: COMPARISON OF TWO APPROACHES</b> .....                   | 670 |
| <i>R. Wolff, T. Lueth, J. Weitz, H. Deppe</i>   |     |
| <b>FEATURE ENHANCEMENT ERROR COMPENSATION FOR NOISE ROBUST SPEECH RECOGNITION</b> .....                                   | 676 |
| <i>G. Lee, S. Kang, C. Han, N. Kim</i>  |     |
| <b>MOBILE-FREE DRIVING WITH ANDROID PHONES: SYSTEM DESIGN AND PERFORMANCE EVALUATION</b> .....                            | 680 |
| <i>R. Khalil, A. Khalifeh, K. Darabkh</i>   |     |
| <b>PERFORMANCE EVALUATION OF VOICE-CONTROLLED ONLINE SYSTEMS</b> .....  | 686 |
| <i>A. Khalifeh, K. Darabkh, A. Kamel</i>  |     |
| <b>AERIAL SEQUENCE REGISTRATION FOR VEHICLE DETECTION</b> .....   | 692 |
| <i>I. Mtir, K. Kaaniche, M. Chtourou, P. Vasseur</i>  |     |
| <b>SOFT DECISION PAPR REDUCTION IN OFDM</b> .....   | 698 |
| <i>J. Radic, N. Rozic</i>   |     |
| <b>A SYSTEM FOR VEHICLE ACCESS CONTROL WITH APPLICATION TO PILGRIMAGE SEASON IN SAUDI ARABIA</b> .....                    | 701 |
| <i>M. Deriche, M. Mohandes</i>  |     |
| <b>FUZZY-BASED GANG SCHEDULING APPROACH FOR MULTIPROCESSOR SYSTEMS</b> .....  | 707 |
| <i>K. Al-Aubidy, K. Batiha, H. Al-Kharbshh</i>  |     |
| <b>FINDING AN OPTIMAL SET OF BREAKPOINT LOCATIONS IN A CONTROL FLOW GRAPH</b> .....                                       | 713 |
| <i>J. Langer, M. Roßler, U. Heinkel</i>   |     |
| <b>CONTINUOUS FRACTIONAL KALMAN FILTER</b> .....  | 719 |
| <i>M. Aoun, S. Najjar, M. Abdelhamid, M. Abdelkrim</i>  |     |
| <b>KALMAN FILTER METHOD FOR PACKET LOSS REPLACEMENT IN PRESENCE OF BACKGROUND NOISE</b> .....                             | 725 |
| <i>S. Miralavi, S. Ghorshi, A. Tahaiei, A. Rahimi</i>   |     |
| <b>COMPARATIVE ANALYSIS OF AUDIO WATERMARKING TECHNIQUE IN MDCT DOMAIN WITH OTHER REFERENCES IN SPECTRAL DOMAIN</b> ..... | 729 |
| <i>M. Bellaaj, K. Ouni</i>  |     |
| <b>TOOL-SUPPORTED SPECIFICATION OF A WIND TURBINE</b> .....   | 735 |
| <i>E. Markert, M. Shende, T. Horn, P. Wolf, U. Heinkel</i>  |     |

|  |            |
|--|------------|
| <b>EXPLORATION OF THE CHOQUET INTEGRAL FOR THE FUSION OF BIOMETRIC MODALITIES .....</b>                            | <b>741</b> |
| <i>A. Khalifa, N. Amara</i>  |            |
| <b>HIGH EFFICIENT DOHERTY POWER AMPLIFIER FOR WIRELESS COMMUNICATION .....</b>                                     | <b>747</b> |
| <i>R. Paulo, T. Drechsel, R. Wolf, C. Carta, F. Ellinger</i>   |            |
| <b>THE IMPACT OF TRANSCEIVER DISTORTIONS ON THE SPECTRAL PROPERTIES OF RANDOM CDMA WITH CONSTANT ENVELOPE.....</b> | <b>753</b> |
| <i>A. Lampe, R. Muller</i>   |            |
| <b>NEW ARRIVING PROCESS FOR CONVOLUTIONAL CODES WITH ADAPTIVE BEHAVIOR .....</b>                                   | <b>759</b> |
| <i>K. Darabkh, A. Khalifeh, M. Naser, E. Al-Qaralleh</i>   |            |
| <b>EVALUATION OF AUXILIARY TONE BASED MAC SCHEME FOR WIRELESS AD HOC NETWORKS WITH DIRECTIONAL ANTENNAS .....</b>  | <b>765</b> |
| <i>R. Rahimi, G. Dadashzadeh</i>   |            |
| <b>DESIGN OF WIDEBAND BEAMFORMING USING PARTICLE SWARM OPTIMIZATION .....</b>                                      | <b>769</b> |
| <i>M. Khawaldeh, D. Al-Nadi</i>  |            |
| <b>15 GBPS COMMUNICATION OVER AN USB3.0 CABLE AND EVEN MORE .....</b>  | <b>774</b> |
| <i>A. Wolf, C. Scheytt</i>   |            |
| <b>OPTICAL OFDM QOS IMPROVEMENT BASED ON WAVELET PACKET TRANSFORM .....</b>  | <b>777</b> |
| <i>O. Daoud, A. Damati</i>   |            |
| <b>EFFICIENT FIRMWARE IMPLEMENTATION OF A MULTICHANNEL SCANNING RECEIVER FOR SURVEILLANCE APPLICATIONS.....</b>    | <b>781</b> |
| <i>F. Hausknecht, R. Mzyk, G. Dehm-And one, U. Trautwein, G. Fischer, R. Weigel</i>                                |            |
| <b>SIGNAL PROCESSING STRATEGIES FOR SIX-PORT BASED DIRECTION OF ARRIVAL DETECTOR SYSTEMS .....</b>                 | <b>787</b> |
| <i>F. Barbon, G. Vinci, S. Lindner, R. Weigel, A. Koelpin</i>  |            |
| <b>DESIGN OF WIDE TUNING INJECTION LOCKED FREQUENCY DIVIDER AND LC_VCO FOR MULTI-STANDARDS APPLICATIONS .....</b>  | <b>792</b> |
| <i>T. Chtioui, D. Bissa, A. Fakhfakh, M. Samet</i>   |            |
| <b>DESIGN AND SIMULATION DUAL-BAND PIFA ANTENNA FOR GSM SYSTEMS .....</b>  | <b>798</b> |
| <i>S. Luhaib, K. Quboa, B. Abaoy</i>   |            |
| <b>LOAD BALANCING WITH MINIMAL FLOW REMAPPING FOR THE AGILE ALL-PHOTONIC NETWORK.....</b>                          | <b>802</b> |
| <i>I. Khazali, A. Agarwal</i>  |            |
| <b>MULTIPLE DESCRIPTIONS CODING IN MELP CODER FOR VOICE OVER IP .....</b>  | <b>808</b> |
| <i>M. Saidi, B. Boudraa, M. Bouzid, M. Boudraa</i>   |            |
| <b>DYNAMIC SEGMENTATION APPROACH FOR EFFICIENT ARABIAN MUSIC TRANSCRIPTION.....</b>                                | <b>815</b> |
| <i>M. Al-Tae, A. Aiy</i>   |            |
| <b>AUTOMATIC LANGUAGE IDENTIFICATION IN SPEECH STREAMS .....</b>   | <b>820</b> |
| <i>R. Chakroun, Y. BenAyed</i>   |            |
| <b>DEVELOPMENT OF A MULTISENSOR ROAD SURVEYING MEASUREMENT SYSTEM .....</b>  | <b>824</b> |
| <i>R. Streiter, N. Mattern, G. Wanielik</i>  |            |
| <b>IMPROVED POWER ALLOCATION IN PARALLEL POISSON CHANNELS .....</b>  | <b>829</b> |
| <i>R. Rahimi, G. Dadashzadeh</i>   |            |
| <b>AUDIO-WATERMARKING BASED OWNERSHIP VERIFICATION SYSTEM USING ENHANCED DWT-SVD TECHNIQUE.....</b>                | <b>833</b> |
| <i>M. Al-Yaman, M. Tae, H. Alshammas</i>   |            |
| <b>COORDINATE ROTATION ALGORITHM BASED NON-LINEAR ADAPTIVE DECISION FEEDBACK EQUALIZER .....</b>                   | <b>838</b> |
| <i>R. Mishra, A. Mandal</i>  |            |
| <b>INFLUENCE OF MULTIPATH RADIO PROPAGATION ON WIDEBAND CHANNEL TRANSMISSION .....</b>                             | <b>843</b> |
| <i>S. Boualleg, B. Haraubia</i>  |            |
| <b>MODIFIED FAST DOA ESTIMATION ALGORITHM USING PSEUDOSPECTRAL MATRIX .....</b>                                    | <b>849</b> |
| <i>M. Fahad, K. Kiseon</i>   |            |
| <b>LOW PASS INTERPOLATION IN MULTIPLE ACCESS SYSTEMS.....</b>  | <b>851</b> |
| <i>S. Mustafa</i>  |            |



## **CONTENTS (VOLUME IV)**

### **KEYNOTE LECTURES**

|   |            |
|---|------------|
| <b>SMART LASER SENSOR WITH MEASUREMENT UNCERTAINTIES BEYOND THE DIFFRACTION LIMIT .....</b> | <b>857</b> |
| <i>J. Czarske, J. Konig, L. Buttner</i>   |            |

### **PAPERS**

|  |            |
|--|------------|
| <b>MEMS ACOUSTIC EMISSION SENSOR WITH MECHANICAL NOISE REJECTION .....</b>   | <b>862</b> |
| <i>C. Auerswald, A. Sorger, M. Dienel, A. Shaporin, J. Mehner</i>  |            |
| <b>MODAL ANALYSIS OF MEMS USING ULTRASONIC BASE EXCITATION.....</b>  | <b>868</b> |
| <i>S. Kehrberg, P. Wellner, C. Geckeler, J. Mehner</i>   |            |
| <b>CFD ANALYSIS OF VISCOUS LOSSES IN COMPLEX MICROSYSTEMS.....</b>   | <b>872</b> |
| <i>A. Sorger, M. Freitag, A. Shaporin, J. Mehner</i>   |            |
| <b>SYSTEM LEVEL SIMULATION - A CORE METHOD FOR EFFICIENT DESIGN OF MEMS AND MECHATRONIC SYSTEMS.....</b>   | <b>876</b> |
| <i>P. Schneider, C. Bayer, K. Einwich, A. Kohler</i>   |            |
| <b>INFLUENCE OF SURFACE EFFECTS ON THE CHARACTERISTIC CURVES OF DETERGENT SENSORS.....</b>   | <b>882</b> |
| <i>R. Gruden, O. Kanoun, U. Troltzsch</i>  |            |
| <b>IMPEDANCE SPECTROSCOPY IN SOLID STATE ELECTROLYTE CHARACTERIZATION .....</b>  | <b>888</b> |
| <i>F. Wendler, P. Buschel, O. Kanoun, J. Schadewald, C. Bufon, O. Schmidt</i>  |            |
| <b>SUPERCAPACITOR IMPEDANCE IN TIME AND FREQUENCY DOMAIN .....</b>   | <b>892</b> |
| <i>A. Cuadras, V. Ovejas</i>   |            |
| <b>DEVELOPMENT OF AN INDUCTIVE CONCENTRATION MEASUREMENT SENSOR OF NANO SIZED ZERO VALENT IRON .....</b>   | <b>898</b> |
| <i>H. Li, C. Boer, A. Buchau, N. Klaas, W. Rucker, H. Hermes</i>   |            |
| <b>WIRELESS SENSING OF OPEN LOOP MICRO COILS USING AN AIR CORE HELICAL COIL.....</b>   | <b>905</b> |
| <i>A. Yousaf, L. Reindl</i>  |            |
| <b>TESTING SYMMETRICAL 2.4 GHZ ZIGBEE TRANSCEIVERS USING UNSYMMETRICAL RF MEASUREMENT EQUIPMENT .....</b>  | <b>910</b> |
| <i>B. Bieske, A. Rolapp</i>  |            |
| <b>EFFICIENT CHAOTIC COMMUNICATION SYSTEM FOR WIRELESS SENSING APPLICATIONS.....</b>   | <b>914</b> |
| <i>H. Abdullah, A. Valenzuela</i>  |            |
| <b>DEVELOPING AND TESTING RF MODULES IN CMOS FOR ISM AND SRD BANDS USING PXI PLATFORM .....</b>  | <b>919</b> |
| <i>B. Bieske, K. Heinrich</i>  |            |
| <b>SELF-SYNCHRONIZED ENERGY EFFICIENT EVENT DETECTION WITH WIRELESS SENSOR NETWORKS.....</b>   | <b>925</b> |
| <i>M. Erd, M. Kostic, A. Stolz, F. Schaefer, C. Brenneis, T. Ostertag, M. Loschonsky, L. Reindl</i>  |            |
| <b>A WIRELESS FRAMEWORK FOR MOVEMENT ACTIVITY MONITORING OF SPRINTERS.....</b>   | <b>931</b> |
| <i>A. Kuznietsov, D. Neubauer</i>  |            |
| <b>LOW-POWER CLOCK AND DATA RECOVERY CIRCUIT FOR IR-UWB RECEIVER POWER MANAGEMENT.....</b>   | <b>937</b> |
| <i>N. Tall, N. Dehaese, S. Bourdel, O. Fourquin, R. Vauche, J. Gaubert</i>   |            |
| <b>AN ENHANCED FOLDED CASCODE OTA WITH PUSH PULL INPUT STAGE .....</b>   | <b>943</b> |
| <i>S. Kumaravel, B. Venkataramani, S. Rishi, V. Vijay, B. Shailendra</i>   |            |
| <b>A HW/SW IMPLEMENTATION ON FPGA OF A ROBOT LOCALIZATION ALGORITHM.....</b>   | <b>949</b> |
| <i>A. Ghorbel, N. Amor, L. Amouri, M. Jallouli</i>   |            |
| <b>INVESTIGATIONS OF ANNEALING TEMPERATURE AND AGING TIME ON ENERGY CONVERSION EFFICIENCY OF <math>\text{Cu}_2\text{S}</math>/ CDS SOLAR CELLS .....</b> | <b>956</b> |
| <i>W. Mohammad</i>   |            |
| <b>DESIGN OF A PRINTED ORGANIC RFID CIRCUIT WITH AN INTEGRATED SENSOR FOR SMART LABELS .....</b>   | <b>960</b> |
| <i>P. Jakimovski, T. Riedel, A. Hadda, M. Beigl</i>  |            |
| <b>RANGE DETECTION WITH MICROMETER PRECISION USING A HIGH ACCURACY FMCW RADAR SYSTEM .....</b>   | <b>966</b> |
| <i>M. Pauli, S. Ayhan, S. Scherr, C. Rusch, T. Zwick</i>   |            |

|  |             |
|--|-------------|
| <b>PRINTED LOOP AND CERAMIC ANTENNA FOR WIRELESS INTERROGATION OF SAW RESONATORS ON A CLAMP SYSTEM .....</b>   | <b>970</b>  |
| <i>J. Boccard, L. Reindl</i>   |             |
| <b>RESONANCE PARAMETER ESTIMATION FOR LOW-Q MICROWAVE CAVITIES .....</b>   | <b>975</b>  |
| <i>T. Jungkunz, G. Fischerauer</i>   |             |
| <b>THE SIX-PORT TECHNOLOGY: A LOW-COST CONCEPT FOR PRECISE POSITION MEASUREMENTS .....</b>   | <b>981</b>  |
| <i>A. Koelpin, G. Vinci, F. Barbon, S. Lindner, G. Fischer, R. Weigel</i>  |             |
| <b>A NOVEL MULTIMODAL WAVEGUIDE TECHNIQUE FOR THE BROADBAND CHARACTERIZATION OF DIELECTRIC MATERIAL PARAMETERS.....</b>                              | <b>986</b>  |
| <i>B. Panzner, A. Jostingmeier, A. Omar</i>  |             |
| <b>ENERGY HARVESTING TECHNOLOGIES: ENERGY SOURCES, GENERATORS AND MANAGEMENT FOR WIRELESS AUTONOMOUS APPLICATIONS .....</b>                          | <b>992</b>  |
| <i>M. Kroener</i>  |             |
| <b>ENERGY PROFILE ANALYSIS BY SIMULATION FOR THE DESIGN OF ENERGY HARVESTING SYSTEMS .....</b>   | <b>996</b>  |
| <i>C. Viehweger, M. Bauldauf, T. Keutel, O. Kanoun</i>   |             |
| <b>DESIGNING PHOTOVOLTAIC CELLS FOR INDOOR ENERGY HARVESTING SYSTEMS .....</b>   | <b>999</b>  |
| <i>K. Rühle, M. Freunek, L. Reindl, M. Kasemann</i>  |             |
| <b>MEMS DESIGN FOR AN EFFICIENT ELECTROSTATIC ENERGY HARVESTER COMBINED WITH COMPONENTS OF PRECISION MECHANICS .....</b>                             | <b>1004</b> |
| <i>J. Schaufuss, J. Mehner</i>   |             |
| <b>RANGE EXTENSION FOR WIRELESS WAKE-UP RECEIVERS .....</b>  | <b>1010</b> |
| <i>G. Gamm, L. Reindl</i>  |             |
| <b>AMBIENT ELECTROMAGNETIC WIRELESS ENERGY HARVESTING USING MULTIBAND PLANAR ANTENNA .....</b>   | <b>1014</b> |
| <i>A. Nimo, D. Grgic, L. Reindl</i>  |             |
| <b>ENERGY HARVESTING FOR OVERHEAD POWER LINE MONITORING.....</b>   | <b>1020</b> |
| <i>X. Zhao, T. Keutel, M. Baldauf, O. Kanoun</i>   |             |
| <b>LOGICALLY CONTROLLED ENERGY MANAGEMENT CIRCUIT.....</b>   | <b>1025</b> |
| <i>N. Amor, O. Kanoun, N. Derbel</i>   |             |
| <b>RF ENERGY HARVESTING SYSTEM DESIGN FOR WIRELESS SENSORS.....</b>  | <b>1029</b> |
| <i>M. Al-Lawati, M. Al-Busaidi, Z. Nadir</i>   |             |
| <b>WIRELESS ENERGY AUTONOMOUS SENSOR NETWORKS FOR AUTOMOBILE SAFETY SYSTEMS .....</b>  | <b>1033</b> |
| <i>M. Thewes, G. Scholl, X. Li</i>   |             |
| <b>MEMS-BASED PIEZOELECTRIC ENERGY HARVESTING MODULES FOR DISTRIBUTED AUTOMOTIVE TIRE SENSORS .....</b>  | <b>1038</b> |
| <i>T. Zimmermann, A. Frey, M. Schreiter, J. Seidel, I. Kuehne</i>  |             |
| <b>LOW-POWER CONCEPT AND PROTOTYPE OF DISTRIBUTED RESISTIVE PRESSURE SENSOR ARRAY FOR SMART FLOOR AND SURFACES IN INTELLIGENT ENVIRONMENTS .....</b> | <b>1042</b> |
| <i>J. Morgado, A. König</i>  |             |
| <b>WIRELESS SENSOR/ACTUATOR-NETWORK WITH IMPROVED COEXISTENCE PERFORMANCE FOR 2.45 GHZ ISM-BAND OPERATION.....</b>                                   | <b>1048</b> |
| <i>D. Kruger, G. Scholl, R. Heynicke</i>   |             |
| <b>FIBER BRAGG GRATING (FBG) SENSOR SYSTEMS FOR MONITORING OF DYNAMIC STRUCTURAL LOADS .....</b>   | <b>1053</b> |
| <i>T. Buck, M. Müller, A. Koch</i>   |             |
| <b>A PCA-BASED INTERPRETATION OF ULTRASONIC DATA FOR ACCURATELY DETECTING A CORRIDOR WALL .....</b>  | <b>1057</b> |
| <i>N. Giannoccaro, L. Spedicato</i>  |             |
| <b>TDOA BASED LOCALIZATION USING INTERACTING MULTIPLE MODEL ESTIMATOR AND ULTRASONIC TRANSMITTER/RECEIVER.....</b>                                   | <b>1063</b> |
| <i>R. Zhang, F. Hoflinger, L. Reindl</i>   |             |
| <b>TENSODENTAR - EQUIPMENT FOR MEASURING THE EXTRACTION FORCE OF REMOVABLE DENTURES AND PALATAL PLATES.....</b>                                      | <b>1069</b> |
| <i>D. Stefanescu, A. Farcasiu, M. Pauna</i>  |             |
| <b>CRITICAL OPTICAL POWER DENSITY IN PIN-PHOTODIODES.....</b>  | <b>1075</b> |
| <i>M. Meister, M. Reinard, U. Liebold, D. Kirsten, D. Nuernbergk</i>   |             |
| <b>NANOMETAL POLYMERS AS ION-SELECTIVE SENSORS .....</b>   | <b>1080</b> |
| <i>S. Michailovich, K. Eduardovna, Y. Anatolevna</i>   |             |

|   |             |
|---|-------------|
| <b>SYSTEM SIMULATION OF NETWORK ANALYSIS FOR A LOSSY CABLE SYSTEM .....</b>   | <b>1086</b> |
| <i>Q. Shi, O. Kanoun</i>  |             |
| <b>WAFER LEVEL APPROACHES FOR THE INTEGRATION OF CARBON NANOTUBES IN ELECTRONIC AND SENSOR APPLICATIONS .....</b>                         | <b>1091</b> |
| <i>S. Hermann, H. Fiedler, Y. Haibo, S. Loschek, J. Bonitz, S. Schulz, T. Gessner</i>   |             |
| <b>MODELING OF THE RESISTANCE BETWEEN METAL ELECTRODES AND METALLIC SWNT .....</b>  | <b>1096</b> |
| <i>A. Al-Hamry, A. Benchirouf, N. Dinh, O. Kanoun</i>   |             |
| <b>INVESTIGATION OF RFID PASSIVE STRAIN SENSORS BASED ON CARBON NANOTUBES USING INKJET PRINTING TECHNOLOGY .....</b>                      | <b>1101</b> |
| <i>A. Benchirouf, E. Sowade, A. Al-Hamry, T. Blaudeck, O. Kanoun, R. Baumann</i>  |             |
| <b>APPLICATION OF MULTI-WALLED CARBON NANOTUBE FILM STRAIN GAUGE ON METALLIC SURFACE.....</b>   | <b>1107</b> |
| <i>L. Bu, M. Bahnemann, S. Mockel, T. Keutel, O. Kanoun</i>   |             |
| <b>LARGE AREA SENSOR INTEGRATION IN TEXTILES .....</b>  | <b>1112</b> |
| <i>C. Kallmayer, E. Simon</i>   |             |
| <b>LARGE-AREA WIRELESS SENSOR SYSTEM BASED ON SMART TEXTILES.....</b>   | <b>1117</b> |
| <i>C. Lauterback, A. Steinhage, A. Techmer</i>  |             |
| <b>SENSOR-BASED PERSONAL PROTECTIVE EQUIPMENT "HORST" FOR FORESTRY WORK WITH POWER SAWS.....</b>  | <b>1119</b> |
| <i>J. Beringer, M. Rupp, A. Mahr-Erhardt</i>  |             |
| <b>SIMULATION OF NANOSTRUCTURES FOR SENSOR AND CIRCUIT APPLICATIONS.....</b>  | <b>1122</b> |
| <i>A. Zienert, C. Wagner, J. Schuster, R. Streiter, S. Schulz, T. Gessner, S. Mohammadzadeh</i>   |             |
| <b>CARBON NANOTUBE COMPOSITE FOR APPLICATION IN GAIT ANALYSIS .....</b>   | <b>1127</b> |
| <i>C. Gerlach, J. Lange, O. Kanoun</i>  |             |
| <b>NANOMECHANICS OF CNTS FOR SENSOR APPLICATION .....</b>   | <b>1131</b> |
| <i>C. Wagner, S. Hartmann, J. Schuster, S. Schulz, B. Wunderle, T. Gessner</i>  |             |
| <b>INKJET PRINTING OF CHEMIRESENSITIVE SENSORS BASED ON POLYMER AND CARBON NANOTUBE NETWORKS .....</b>                                    | <b>1136</b> |
| <i>P. Lorwongtragool, E. Sowade, T. Dinh, O. Kanoun, T. Kerdcharoen, R. Baumann</i>   |             |
| <b>SAAS-PLATFORM FOR MOBILE HEALTH APPLICATIONS.....</b>  | <b>1140</b> |
| <i>R. Berndt, M. Takenga, S. Kuehn, P. Preik, G. Sommer, S. Berndt</i>  |             |
| <b>PHYSIOLOGICAL SIGNALS TO INDIVIDUAL ASSESSMENT FOR APPLICATION IN WIRELESS HEALTH SYSTEMS.....</b>                                     | <b>1144</b> |
| <i>M. Kumar, N. Stoll, K. Thurow, R. Stoll</i>  |             |
| <b>24-HOUR AMBULATORY MONITORING OF COMPLEX PHYSIOLOGICAL PARAMETERS WITH A WIRELESS HEALTH SYSTEM.....</b>                               | <b>1150</b> |
| <i>A. Rieger, S. Neubert, S. Behrendt, M. Weippert, S. Kruezfeld, R. Stoll</i>  |             |
| <b>SECURE INFORMATION FLOW AWARENESS FOR SMARTWIRELESS EHEALTH SYSTEMS .....</b>  | <b>1153</b> |
| <i>S. Pfeiffer, S. Unger, D. Timmermann, A. Lehmann</i>   |             |
| <b>A PROOF OF CONCEPT FOR MEDICAL DEVICE INTEGRATION USING WEB SERVICES.....</b>  | <b>1159</b> |
| <i>D. Gregorczyk, T. Bußhaus, S. Fischer</i>  |             |
| <b>COMPARISON BETWEEN IMPEDANCE METHOD AND FDM ALGORITHMS FOR LEAK DETECTION IN URBAN WATERWORKS.....</b>                                 | <b>1165</b> |
| <i>A. Lay-Ekuakille, P. Vergallo, C. Giannone</i>   |             |
| <b>SYSTEMS FOR REMOTE MONITORING OF INDOOR AIR QUALITY AND RESPIRATION OF WHEELCHAIR USERS .....</b>                                      | <b>1169</b> |
| <i>O. Postolache, J. Pereira, P. Girao, G. Postolache</i>   |             |
| <b>A REMOVABLE DEVICE FOR AXIAL FORCE AND ORIENTATION MEASUREMENT ON MEDICAL ULTRASOUND PROBE.....</b>                                    | <b>1175</b> |
| <i>S. Chadli, N. Ababou, A. Ababou, N. Djelal, N. Saadia</i>  |             |
| <b>COMPARATIVE STUDY OF VOLTAGE CONTROLLED CURRENT SOURCES FOR BIOIMPEDANCE MEASUREMENTS .....</b>  | <b>1179</b> |
| <i>D. Bouchaala, Q. Shi, X. Chen, O. Kanoun, N. Derbel</i>  |             |
| <b>A METHOD OF CREATION AND SIMULATION OF COMPLEX MODELS OF PHYSIOLOGICAL SYSTEMS FOR EXAMPLE OF RESPIRATORY MECHANICS ANALOGUE .....</b> | <b>1185</b> |
| <i>I. Jablonski</i>   |             |
| <b>HUGE AMOUNT OF HETEROGENEOUS SENSED DATA NEEDS THE CLOUD .....</b>   | <b>1191</b> |
| <i>M. Fazio, M. Paone, A. Puliafito, M. Villari</i>   |             |
| <b>BAND GAP TUNING OF CARBON NANOTUBES FOR SENSOR AND INTERCONNECT APPLICATIONS - A QUANTUM SIMULATION STUDY .....</b>                    | <b>1197</b> |
| <i>J. Sommer, A. Zienert, S. Gemming, J. Schuster</i>   |             |

|   |      |
|---|------|
| <b>STRUCTURING OF CARBON NANOTUBES FOR FIELD EMISSION BASED MOVEMENT SENSORS</b> .....  | 1202 |
| <i>S. Loschek, S. Hermann, H. Yu, S. Schulz, T. Gessner</i>   |      |
| <b>ROBUST DEPTH CAMERA BASED MULTI-USER EYE TRACKING FOR AUTOSTEREOSCOPIC DISPLAYS</b> .....  | 1205 |
| <i>L. Li, Y. Xu, A. Konig</i>   |      |
| <b>DIGITAL ASYNCHRONOUS ON-CHIP TEMPERATURE MEASUREMENT USING A BUFFER RING</b> .....   | 1211 |
| <i>R. Freier, S. Braun, A. Konig</i>  |      |
| <b>A GREAT ULTRAWIDEBAND (3.1-10.6-GHZ) LNA IN 0.18<math>\mu</math>M (CMOS) FOR UWB PULSE-RADIO SYSTEMS APPLICATIONS</b> .....                                  | 1216 |
| <i>H. Dehrizi, J. Haddadnia</i>   |      |
| <b>STUDY AND MODELING NEURAL MEMORY BASED ON SINGLE ELECTRON TRANSISTOR USING SIMON SIMULATOR</b> .....   | 1220 |
| <i>B. Hafsi, A. Boubaker, I. Krout, A. Kalboussi</i>  |      |
| <b>OBSERVER BASED DETERMINATION OF THE CRYSTAL DIAMETER IN CZOCHRALSKI CRYSTAL GROWTH UTILIZING ALGORITHMIC DIFFERENTIATION</b> .....                           | 1226 |
| <i>J. Winkler, K. Robenack</i>  |      |
| <b>A NEW BJT-TRANSISTOR WITH ABILITY OF CONTROLLING CURRENT GAIN</b> .....  | 1232 |
| <i>S. Hosseini, H. Dehrizi</i>  |      |
| <b>ACCURATE CLOSED-FORM FORMULAS FOR THE ELECTROMAGNETIC PARAMETERS OF 50 OHMS MICROMACHINED MICROSTRIP DIRECTIONAL COUPLERS</b> .....                          | 1236 |
| <i>N. Benahmed, N. Benabdallah</i>  |      |
| <b>WIDEBAND LOW-POWER CURRENT-FEEDBACK INSTRUMENTATION AMPLIFIERS FOR BIOELECTRICAL SIGNALS</b> .....   | 1240 |
| <i>J. Ramos, J. Ausin, J. Duque-Carrillo, G. Torelli</i>  |      |
| <b>UNIVERSAL HARDWARE AND SOFTWARE PACKAGE FOR ELECTRONIC SPECTROSCOPY</b> .....  | 1245 |
| <i>V. Zubrilov, D. Djudjun, D. Valyukhov, Y. Dunaenko</i>   |      |
| <b>ENERGETICAL ASPECTS IN TRANSDUCERS OPERATION AND CLASSIFICATION WITH EMPHASIS ON ELECTRICAL MEASUREMENT OF MECHANICAL QUANTITIES</b> .....                   | 1248 |
| <i>D. Stefanescu</i>  |      |
| <b>SYNTHESIS AND MODELLING OF INFLUENCE OF PRECIPITATION CONDITIONS ON GROWTH SPEED, COMPOSITION AND STRUCTURE OF AMORPHOUS HYDROGENISED CARBON FILMS</b> ..... | 1254 |
| <i>T. Vitaly, S. Boris, M. Shevchenko</i>   |      |
| <b>A 10-BIT 50-MS/S CHARGE INJECTION PIPELINED ADC USING A DIGITAL CALIBRATION</b> .....  | 1258 |
| <i>H. Mafi, H. Shamsi, R. Mohammadi, E. Shami</i>   |      |
| <b>AN ENHANCED FULLY DIFFERENTIAL RECYCLING FOLDED CASCODE OTA</b> .....  | 1264 |
| <i>P. Patra, S. Kumaravel, B. Venkatramani</i>  |      |
| <b>REDUCING THE CALIBRATION POINTS OF MULTISENSORS</b> .....  | 1269 |
| <i>O. Roshchupkin, R. Smid, V. Kochan, A. Sachenko</i>  |      |
| <b>Author Index</b>   |      |