
ELMAR-2012 SYMPOSIUM GENERAL INFORMATION

54th International Symposium ELMAR-2012 is organised by:

- *Croatian Society Electronics in Marine - ELMAR, Zadar*
- *Department of Wireless Communications,
Faculty of Electrical Engineering and Computing, University of Zagreb*

ELMAR-2012 symposium will be held at hotel "Donat" and hotel "Funimation", Borik, Zadar.
Address: Majstora Radovana 7, 23000 Zadar, Croatia.

ELMAR-2012 symposium GENERAL SPONSOR

TANKERSKA PLOVIDBA, ZADAR



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**ELMAR-2012 SYMPOSIUM
SPECIAL SESSIONS**

Special Session 1: "Future Challenges in Spectrum Engineering"
Organizers: *Ana Katalinić Mućalo* and *Miran Gosta*, Croatia

Special Session 2: "Sea and Port Ecology"
Organizer: *Irena Jurdana*, Croatia

Special Session 3: "Precise Point Positioning and Real-Time Kinematics"
Organizer: *Patrick Henkel*, Germany

Special Session 4: "Engineering Applications of Electromagnetics"
Organizers: *Silvio Hrabar*, Croatia

Special Session 5: "Multimodal Biomedical Imaging Data Processing"
Organizers: *Tomislav Kulis*, Croatia

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ELMAR-2012 PROGRAM

Wednesday, 12 September 2012

09:00 - 09:30 Registration		
HALL A		
09:30 - 10:00 OPENING SESSION: Welcome Speeches		
10:00 - 10:30 WELCOME COCKTAIL		
10:30 - 12:30 PLENARY SESSION: Keynote Talks		
12:30 - 14:00 Lunch Break		
HALL A	HALL B	HALL C
14:00 - 15:30 SESSION: Image and Video Processing 1	14:00 - 15:30 SESSION: Wireless Communications	14:00 - 15:30 SESSION: Navigation Systems & Power Electronics and Automation
15:30 - 16:00 Coffee Break		
16:00 - 17:30 SESSION: Image and Video Processing 2	16:00 - 17:30 SESSION: Student Session	16:00 - 17:30 SPECIAL SESSION: Precise Point Positioning and Real-Time Kinematics
18:00 - 21:00 GUIDED ZADAR SIGHTSEEING <u>Meeting Point:</u> Hotel "Funimation", Main Entrance, 18:00		
21:00 ELMAR-2012 SYMPOSIUM DINNER (with cocktail) <u>Meeting Point:</u> Hotel "Funimation", bar at the pool, 21:00		

ELMAR-2012 PROGRAM

Thursday, 13 September 2012

09:00 - 09:30 Registration		
HALL A	HALL B	HALL C
09:30 - 11:00 SESSION: Image and Video Processing 3	09:30 - 11:00 SESSION: Telecommunications	09:30 - 11:00 SPECIAL SESSION: Engineering Applications of Electromagnetics (1/2)
11:00 - 11:15 Coffee Break		
11:15 - 12:45 SPECIAL SESSION: Multimodal Biomedical Imaging Data Processing	11:15 - 12:45 SESSION: e-Learning and m-Learning	11:15 - 12:45 SPECIAL SESSION: Engineering Applications of Electromagnetics (2/2)
13:15 - 21:00 EXCURSION BY SHIP (lunch and dinner included) <u>Meeting Point:</u> Hotel "Funimation", Main Entrance, 13:15		

Friday, 14 September 2012

HALL A	HALL B
09:00 - 10:30 SESSION: Speech and Audio Processing 1	09:00 - 10:30 SPECIAL SESSION: Future Challenges in Spectrum Engineering
10:30 - 11:00 Coffee Break	
11:00 - 13:00 SESSION: Speech and Audio Processing 2	11:00 - 12:00 SPECIAL SESSION: Sea and Port Ecology

Wednesday, 12 September 2012

09:00 - 09:30 **Registration**

HALL A

Wednesday, 12 September 2012

09:30 - 10:00 **OPENING SESSION: Welcome Speeches**

Session Chair: **Branka Zovko-Cihlar, Viljem Jerič**

10:00 - 10:30 **WELCOME COCKTAIL**

10:30 - 12:30 **PLENARY SESSION: Keynote Talks**

Session Chair: **Branka Zovko-Cihlar**

Prof. Abdelhak M. Zoubir, Signal Processing Group, Department of Electrical Engineering and Information Technology, Technische Universität Darmstadt; GERMANY

Recent Advances on Bootstrap for Signal Processing

Prof. Alan Hanjalic, Department of Intelligent Systems, Faculty of Electrical Engineering, Mathematics and Computer Science, Delft University of Technology; THE NETHERLANDS

Advances in Multimedia Information Retrieval

Prof. Zvonimir Sipus, Department of Wireless Communications, Faculty of Electrical Engineering and Computing, University of Zagreb; CROATIA

New Developments in Optical Technology at the University of Zagreb

12:30 - 14:00 **Lunch Break**

14:00 - 15:30 **SESSION: Image and Video Processing 1**

Session Chair: **Krešimir Delač**

Časlav Livada, Irena Galić, Branka Zovko-Cihlar; CROATIA

EEDC Image Compression Using Burrows-Wheeler Data Modeling

Anamaria Bjelopera, Sonja Grgić; CROATIA

Scalable Video Coding Extension of H.264/AVC

Mario Vranješ, Snježana Rimac-Drlje, Denis Vranješ; CROATIA

ECVQ and EVVQ Video Quality Databases

Denis Vranješ, Drago Žagar, Ognjen Nemčić; CROATIA

Comparison of Objective Quality Assessment Methods for Scalable Video Coding

Marvin C. Offiah, Navya Amin, Thomas Gross, Nail El-Sourani, Markus Borschbach; GERMANY

Towards a Benchmarking Framework for Quality-optimized Endoscopic Video Stabilization

Goran Petrović, Tomo Jovanović, Tonko Garma; CROATIA

Laboratory Setup for Developing Intelligent System in the Electrical-Equipment-Related Infra Red Inspection

15:30 - 16:00 **Coffee Break**

16:00 - 17:30 **SESSION: Image and Video Processing 2**

Session Chair: **Krešimir Delač**

Srećko Kunić, Zoran Šego; CROATIA

OLED Technology and Displays

**Paula Yadranka Žitinski Elías, Ante Poljičak, Lidija Mandić,
Maja Strgar Kurečić; CROATIA**

The Measurement of Diverse Displays' Colorimetric Characteristics

Matija Maleš, Adam Heđi, Mislav Grgić; CROATIA

Compositional Rule of Thirds Detection

Marek Vančo, Ivan Minárik, Gregor Rozinaj; SLOVAKIA

Gesture Identification for System Navigation in 3D Scene

Maciej Czupryna, Michal Kawulok; POLAND

Real-Time Vision Pointer Interface

Simone Saraceni, Andrea Claudi, Aldo Franco Dragoni; ITALY

An Active Monitoring System for Real-Time Face-Tracking based on Mobile Sensors

18:00 - 21:00 **GUIDED ZADAR SIGHTSEEING**

Meeting Point: Hotel "Funimation", Main Entrance, 18:00

21:00 **ELMAR-2012 SYMPOSIUM DINNER (with cocktail)**

Meeting Point: Hotel "Funimation", bar at the pool, 21:00

14:00 - 15:30 **SESSION: Wireless Communications**

Session Chair: **Borivoj Modlic**

Dijana Tralic, Emil Dumic, Josip Vukovic, Sonja Grgic; CROATIA

Simulation and Measurement of DVB-T2 Channel Characteristics

José Carlos Reyes-Guerrero, Luis Antonio Mariscal; SPAIN

Experimental Time Dispersion Parameters of Wireless Channels over Sea at 5.8 GHz

Andrej Kozemcak, Tomas Kovacik; SLOVAKIA

Different Network Traffic Measurement Techniques – Possibilities and Results

Peter Kantor, János Bitó; HUNGARY

Frame-based Adaptive Video Transmission over a Cooperating Femto-Multilink Environment

Jelena Radic, Alena Djugova, Laszlo Nagy, Kalman Babkovic,

Mirjana Videnovic-Misic; SERBIA

Feedback Influence on Ring Oscillator Performance for IR-UWB Pulse Generator in 0.13 μ m CMOS Technology

Winton Afric, Sonja Zentner Pilinsky; CROATIA

UMTS LTE Downlink Cell Size Calculation

15:30 - 16:00 **Coffee Break**

16:00 - 17:30 **SESSION: Student Session**

Session Chair: **Iva Bojic and Jelena Bozek**

Estevao S. Gedraite; BRAZIL

Evaluation of a Low Cost Procedure to Perform a Transmission Line Matching for Lab Courses

George Suciu, Traian-Lucian Militaru, Cristian-George Cernat, Gyorgy Todoran, Vlad-Andrei Poenaru; ROMANIA

Platform for Online Collaboration and e-Learning in Open Source Distributed Cloud Systems

Neven Drljevic, Ivica Boticki; CROATIA

Leveraging Social Networks to Increase Motivation in Learning Programming

Luka Horvat, Josip Balen, Goran Martinović; CROATIA

Proposal of mLearning System for Written Exams

18:00 - 21:00 **GUIDED ZADAR SIGHTSEEING**

Meeting Point: Hotel "Funimation", Main Entrance, 18:00

21:00

ELMAR-2012 SYMPOSIUM DINNER (with cocktail)

Meeting Point: Hotel "Funimation", bar at the pool, 21:00

14:00 - 15:30

**SESSION: Navigation Systems &
Power Electronics and Automation**Session Chair: Peter Truchly**Erkki Moorits, Aivar Usk; ESTONIA**

Buoy Collision Detection

Peter Truchly, Mate Vangel; SLOVAKIA

Performance of Multilayered Satellite Networks

Premysl Janu, Jan Boril; CZECH REPUBLICThe Communication Analysis of Strapdown Inertial Navigation System
via CANaerospace Bus**Yuhong Yang, Junchuan Zhou, Otmar Loffeld; GERMANY**

GPS Receiver Tracking Loop Design based on a Kalman Filtering Approach

Muhammad Ahsan, Tapio Saramaki, Moncef Gabbouj; FINLANDA Novel Technique to Design Optimum FIR Digital Filters with Different Transition
Bandwidths**Zijad Bajramović, Irfan Turković, Adnan Mujezinović, Adnan Čaršimamović, Aida
Muharemović; BOSNIA AND HERZEGOVINA**

Measures to Reduce Electromagnetic Interferences on Substation Secondary Circuits

**Almir Salihbegović, Emir Sokić, Aida Salihbegović, Mujo Hebibović;
BOSNIA AND HERZEGOVINA**Reducing Off-road Vehicle Seat Vibrations Using Hydraulic Piston and Fuzzy Logic
Controller

15:30 - 16:00

Coffee Break

16:00 - 17:30

**SPECIAL SESSION:
Precise Point Positioning and Real-Time Kinematics**Session Chair: Patrick Henkel**J. Sebastian Knogl, Patrick Henkel, Christoph Günther; GERMANY**

Accuracy Bounds for Positioning of Geostationary Data Relays using LEO Satellites

Zhibo Wen, Patrick Henkel, Andreas Brack, Christoph Günther; GERMANY

Best Integer Equivariant Estimation for Precise Point Positioning

Patrick Henkel, Juan Manuel Cardenas, Patryk Jurkowski; GERMANY

Cascaded Heading Estimation with Phase Coasting

18:00 - 21:00

GUIDED ZADAR SIGHTSEEINGMeeting Point: Hotel "Funimation", Main Entrance, 18:00

21:00

ELMAR-2012 SYMPOSIUM DINNER (with cocktail)Meeting Point: Hotel "Funimation", bar at the pool, 21:00

Thursday, 13 September 2012

HALL A

Thursday, 13 September 2012

09:30 - 11:00 **SESSION: Image and Video Processing 3**

Session Chair: **Gerald Schaefer**

Vedran Novoselac, Branka Zovko-Cihlar; CROATIA

Image Noise Reduction by Vector Median Filter

Grzegorz Ulacha, Ryszard Stasiński; POLAND

Paths to Future Image Lossless Coding

Mario Mustra, Mislav Grgic, Jelena Bozek; CROATIA

Application of Gabor Filters for Detection of Dense Tissue in Mammograms

Niraj Doshi, Gerald Schaefer; UNITED KINGDOM

Rotation-invariant Local Binary Pattern Texture Classification

David Edmundson, Gerald Schaefer; UNITED KINGDOM

An Overview and Evaluation of JPEG Compressed Domain Retrieval Techniques

Dušan Levický, Gabriel Bugár, Vladimír Bánoci; SLOVAKIA

A Novel JPEG Steganography Method Secure Against Histogram Steganalysis

11:00 - 11:15 **Coffee Break**

11:15 - 12:45 **SPECIAL SESSION:
Multimodal Biomedical Imaging Data Processing**

Session Chair: **Tomislav Kulis**

Svetlana Antonini, Darko Kolarić, Željko Herceg, Tomislav Kuliš, Marko Banić; CROATIA

Thermographic visualisation of Multicentric Breast Carcinoma

Tomislav Kulis, Darko Kolaric, Kresimir Karlovic, Matej Knezevic, Svetlana Antonini, Josip Samardzic, Milan Bitunjac, Zeljko Kastelan; CROATIA

Scrotal Infrared Digital Thermography in Varicocele – Additional Analysis

Damir Haluzan, Ivan Dobric, Jagoda Stipic, Tin Ehrenfreund, Goran Augustin, Slavko Davila; CROATIA

Application of Infrared Thermography During Bone Healing

Marko Banić, Darko Kolarić, Tonči Božin, Tomislav Kuliš, Mirjana Vukelić, Željko Herceg, Lidija Petrićušić, Svetlana Antonini; CROATIA

Thermography in abdominal comorbidity in gastric carcinoma: case report

Iskra A. Nola, Katja Gotovac, Darko Kolarić; CROATIA

Thermography in Biomedicine – Specific Requirements

13:15 - 21:00 **EXCURSION BY SHIP** (lunch and dinner included)
Meeting Point: Hotel "Funimation", Main Entrance, 13:15

09:30 - 11:00 **SESSION: Telecommunications**

Session Chairs: **Pavol Podhradsky**

Pavol Číž, Ondrej Lábaj, Pavol Podhradský, Juraj Londák; SLOVAKIA

VoIP Intrusion Detection System with Snort

Peter Dvorský, Juraj Londák, Ondrej Lábaj, Pavol Podhradský; SLOVAKIA

Comparison of Codecs for Videoconferencing Service in NGN

Marek Neruda, Lukas Vojtech; CZECH REPUBLIC

Modeling of Smart Textile Materials for ESD Applications

Nermin Goran, Alen Begović; BOSNIA AND HERZEGOVINA

Practical Model of Considering Crosstalk Problems of DSL Signal Transmission

Patrik Gallo, Dušan Levický, Gabriel Bugár; SLOVAKIA

Authentication Threats in PSTN-VoIP Architecture Using Multi-Service Gateways

Tomas Kovacik, Jana Flochova, Jakub Holly; SLOVAKIA

Modeling IMS Service Sharing System using Petri nets

Jesenska Pibernik, Bojan Kanižaj, Lucija Frljak; CROATIA

Conceptual Models for Better Quality of Portfolio Web Site Experience

11:00 - 11:15 **Coffee Break**

11:15 - 12:45 **SESSION: e-Learning and m-Learning**

Session Chair: **Narcis Behlilović**

Traian-Lucian Militaru, George Suciu, Gyorgy Todoran; ROMANIA

The Evaluation of the e-Learning Applications' Quality

Mario Jagar, Juraj Petrović, Predrag Pale; CROATIA

AuResS: The Audience Response System

Juraj Blichár, Pavol Podhradský; SLOVAKIA

Liferay as a Collaboration and Communication Platform for M-learning Subsystem

13:15 - 21:00 **EXCURSION BY SHIP** (lunch and dinner included)
Meeting Point: Hotel "Funimation", Main Entrance, 13:15

09:30 - 11:00

**SPECIAL SESSION:
Engineering Applications of Electromagnetics 1/2**Session Chair: **Silvio Hrabar and Zvonimir Sipus****Vanja Mandrić, Slavko Rupčić, Drago Žagar; CROATIA**
Optimization of the Spherical Antenna Arrays**Zoran Sriča, Branimir Ivšić, Davor Bonefačić; CROATIA**
Dual-band Microstrip Antenna for GSM Applications**Iva Bačić, Željko Petrunić, Krešimir Malarić; CROATIA**
Comparison of LabVIEW Model with Measured Microwave Link Parameters**Marko Bosiljevac, Tin Komljenović, Dubravko Babić, Zvonimir Šipuš; CROATIA**
Interrogating FBG Based Temperature Sensors - Practical Issues**Zvonimir Šipuš, Juraj Bartolić, Željka Milin Šipuš; CROATIA**
Mathematical Concepts in Electromagnetics: Teaching Experiences

11:00 - 11:15

Coffee Break

11:15 - 12:45

**SPECIAL SESSION:
Engineering Applications of Electromagnetics 2/2**Session Chair: **Silvio Hrabar and Zvonimir Sipus****Damir Zidar, Silvio Hrabar, Igor Krois; CROATIA**
Stability Analysis of Active Broadband ENZ Line**Iva Malčić, Silvio Hrabar; CROATIA**
Numerical Analysis of Bandwidth of 2D Cylindrical Anisotropic EM Cloaks**Davor Zaluški, Damir Muha, Silvio Hrabar; CROATIA**
Experimental Verification of Metamaterial-based DB Unit Cell**Damir Muha, Silvio Hrabar, Igor Krois, Aleksandar Kiricenko, Ivan Bonic,
Davor Zaluški; CROATIA**
Numerical Analysis of Non-Foster-based Leaky-wave Antenna**Boris Okorn, Silvio Hrabar, Jordi Sancho-Parramon; CROATIA**
Circuit-theory Interpretation of Optical Multilayer ENZ Metamaterial with Enhanced Bandwidth

13:15 - 21:00

EXCURSION BY SHIP (lunch and dinner included)
Meeting Point: Hotel "Funimation", Main Entrance, 13:15

Friday, 14 September 2012

HALL A

Friday, 14 September 2012

09:00 - 10:30 **SESSION: Speech and Audio Processing 1**

Session Chair: **Gregor Rozinaj**

Matus Pleva, Martin Lojka, Jozef Juhar, Eva Vozarikova; SLOVAKIA

Evaluating the Modified Viterbi Decoder for Long-Term Audio Events Monitoring Task

Zoran Brajević, Antonio Petošić; CROATIA

Signal Denoising using STFT with Bayes prediction and Ephraim-Malah estimation

Gordan Kreković, Davor Petrinović; CROATIA

Automated Control of Sound Synthesis in Live Musical Performances Using Modified Online Time Warping

Juraj Kacur, Ivan Lapin, Juraj Durajka, Gregor Rozinaj; SLOVAKIA

Speaker Identification System based on a Web Interface

Daniel Hladek, Jan Stas, Jozef Juhar; SLOVAKIA

Dagger: The Slovak Morphological Classifier

Michal Chmulík, Roman Jarina, Michal Kuba; SLOVAKIA

On Objective Feature Selection for Affective Sounds Discrimination

10:30 - 11:00 **Coffee Break**

11:00 - 13:00 **SESSION: Speech and Audio Processing 2**

Session Chair: **Gregor Rozinaj**

Jozef Vavrek, Anton Cizmar, Jozef Juhar; SLOVAKIA

SVM Binary Decision Tree Architecture for Multi-class Audio Classification

Martin Turi Nagy, Radoslav Vargic; SLOVAKIA

Audio and Speech Compression using Sinusoidal Modeling and Wavelet Residuum Coding

Jan Prazak, Marek Bohac; CZECH REPUBLIC

Speaker Diarization of Broadcast Audio Using Automatic Transcription, iVectors and Cosine Distance Scoring

Marek Bohac; CZECH REPUBLIC

Performance Comparison of Several Techniques to Detect Keywords in Audio Streams and Audio Scene

Miruna Stănescu (Pașca), Andi Buzo, Horia Cucu, Corneliu Burileanu; ROMANIA

Statistical Phonetic Analysis of the Romanian Language for Speech Recognition and Synthesis Tasks

**Josef Chaloupka, Petr Červa, Jan Silovský, Jindřich Žďánský, Jan Nouza;
CZECH REPUBLIC**

Modification of the Speech Feature Extraction Module for the Improvement of the System for Automatic Lectures Transcription

Jan Nouza, Petr Cerva, Jindrich Zdansky, Michaela Kucharova; CZECH REPUBLIC
A Study on Adapting Czech Automatic Speech Recognition System to Croatian Language

Vladimir Despotović, Norbert Görtz, Zoran Perić; SERBIA / AUSTRIA
Improved Non-Linear Long-Term Predictors based on Volterra Filters

09:00 - 10:30

SPECIAL SESSION: Future Challenges in Spectrum EngineeringSession Chair: **Ana Katalinić Mucalo and Miran Gosta****Krunoslav Bejuk, Ana Katalinić Mucalo; CROATIA**

Analysis of Spectrum Efficiency When Using Asymmetric Microwave Links

Roland Beutler, Darko Ratkaj; GERMANY / SWITZERLAND

Evolution of Terrestrial Broadcasting

Miran Gosta, Kresimir Sakic; CROATIA

Digital Dividend after the Transition to DVB-T2

Kresimir Sakic, Miran Gosta; CROATIA

Measurements on the Influence of the LTE System on DVB-T Reception

Alberto Tekovic; CROATIA

LTE in Digital Dividend: Deployment Challenges - DVB-C2 Case

Alberto Tekovic, Gordan Šimac, Krešimir Šakić; CROATIA

LTE Downlink System Performance Measurement with Intersystem Interference Caused by DVB-T Signal

10:30 - 11:00

Coffee Break

11:00 - 12:30

SPECIAL SESSION: Sea and Port EcologySession Chair: **Irena Jurdana****Goran Bakalar, Vinko Tomas, Željko Sesar; CROATIA**

Remote Monitoring of Ballast Water Treatment System Quality by Using Flow Cytometry and Satellite Communication Technologies

Jasmin Celic, Aleksandar Cuculic, Marko Valcic; CROATIA

Remote Sensing for Ship Emissions Monitoring in Adriatic Ports: An Approach

Darko Glažar, Kristina Grubišić; CROATIA

The County Operations Center in Function of Increasing Environmental Awareness in the Republic of Croatia

Renato Ivče, Irena Jurdana, Robert Mohović; CROATIA

Method for Improving Container Ship's Squat Prediction Using Optical Fiber Technology

NOTES