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## ELMAR-2009 SYMPOSIUM GENERAL INFORMATION

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51<sup>st</sup> International Symposium ELMAR-2009 is organised by:

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

ELMAR-2009 symposium will be held at hotel "Donat" and hotel "Funimation", Borik, Zadar.  
Address: Majstora Radovana 7, 23000 Zadar, Croatia.

### ELMAR-2009 symposium GENERAL SPONSOR

**TANKERSKA PLOVIDBA, ZADAR**



### ELMAR-2009 symposium SPONSORS

**OiV - Transmitters and Communications**



**HRT - Croatian Radio and Television**



ELMAR-2009 symposium takes place under the co-sponsorship of:

- *IEEE Region 8*
- *IEEE Croatia Section*
- *IEEE Croatia Section Chapter of the Signal Processing Society*
- *IEEE Croatia Section Joint Chapter of the AP/MTT Societies*
- *The European Association for Signal, Speech and Image Processing - EURASIP*
- *Ministry of Science, Education and Sports of the Republic of Croatia*
- *Ministry of the Sea, Transport and Infrastructure of the Republic of Croatia*
- *University of Zagreb*
- *Faculty of Electrical Engineering and Computing, University of Zagreb*
- *University of Zadar*
- *Institute of Oceanography and Fisheries*
- *Hydrographic Institute of the Republic of Croatia*

ELMAR-2009 symposium is supported by:

- *STORM Computers*
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- *JANAF - Jadranski naftovod*
- *Mobis Electronic*
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- *KONČAR - Institut za elektrotehniku*
- *Supra Net Projekt*
- *AVC - Audio Video Consulting*
- *HTZ - Croatian National Tourist Board*
- *Zadar Tourist Board*
- *County of Zadar*
- *Town of Zadar*
- *Falkensteiner Borik Zadar Croatia*



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## ELMAR-2009 SYMPOSIUM COMMITTEES

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Ive Mustač, Tankerska plovodba, Zadar, Croatia  
Branka Zovko-Cihlar, University of Zagreb, Croatia

### Program Chair

Mislav Grgić, University of Zagreb, Croatia

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## ELMAR-2009 SYMPOSIUM INTERNATIONAL PROGRAM COMMITTEE

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David Broughton, United Kingdom  
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## ELMAR-2009 SYMPOSIUM INTERNATIONAL REVIEW COMMITTEE

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Nikola Šprljan, UK  
Stamatis Voliotis, Greece

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**ELMAR-2009 SYMPOSIUM  
SPECIAL SESSIONS**

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Special Session 1: "Computer Vision in Art"

Organizers: *Borut Batagelj*, Slovenia; *Peter Peer*, Slovenia; *Karolj Skala*, Croatia

Special Session 2: "Electromagnetic Guiding and Radiating Structures and Devices"

Organizers: *Silvio Hrabar*, Croatia

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**CROATIAN SOCIETY  
ELECTRONICS IN MARINE - ELMAR**

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Vice-president: *Ivan Pupovac*

Secretary: *Viljem Jerič*

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*Pavel Cukrov, Milan Goja, Kosta Ugrinović, Božidar Radanović*

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# ELMAR-2009 PROGRAM

**Monday, 28 September 2009**

09:00 - 09:30 <b>Registration</b>		
<b>HALL A</b>		
09:30 - 10:00 <b>OPENING SESSION: Welcome Speeches</b>		
10:00 - 11:00 <b>PLENARY SESSION 1: Keynote Talks</b>		
11:00 - 11:30 <b>WELCOME COCKTAIL</b>		
11:30 - 12:30 <b>PLENARY SESSION 2: Keynote Talks</b>		
12:30 - 14:00 <b>Lunch Break</b>		
<b>HALL A</b>	<b>HALL B</b>	<b>HALL C</b>
14:00 - 15:30 <b>SESSION:</b> <b>Image and Video Processing 1</b>	14:00 - 15:30 <b>SESSION:</b> <b>Multimedia Communications</b>	14:00 - 15:30 <b>SESSION:</b> <b>Power Electronics and Automation &amp; Ship Electronic Systems</b>
15:30 - 16:00 <b>Coffee Break</b>		
16:00 - 17:30 <b>SESSION:</b> <b>Image and Video Processing 2</b>	16:00 - 17:30 <b>SESSION:</b> <b>Telecommunications 1</b>	16:00 - 17:30 <b>SESSION:</b> <b>e-Learning and m-Learning</b>
18:00 - 21:00 <b>GUIDED ZADAR SIGHTSEEING</b> <u>Meeting Point: Hotel "Funimation", Main Entrance, 18:00</u>		
21:00 <b>ELMAR-2009 SYMPOSIUM DINNER</b> <b>(with cocktail and concert)</b> Hotel "Funimation" Restaurant		

# ELMAR-2009 PROGRAM

## Tuesday, 29 September 2009

HALL A	HALL B	HALL C
10:00 - 11:30 <b>SESSION:</b> Image and Video Processing 3	10:00 - 11:30 <b>SESSION:</b> Telecommunications 2	10:00 - 11:30 <b>SESSION:</b> Speech and Audio Processing
12:30 - 21:00 <b>EXCURSION BY SHIP</b> (lunch and dinner included) <u>Meeting Point:</u> Hotel "Funimation", Main Entrance, 12:30		

## Wednesday, 30 September 2009

HALL A	HALL B
10:00 - 11:30 <b>SESSION:</b> Wireless Communications 1	10:00 - 11:30 <b>SPECIAL SESSION:</b> Computer Vision in Art
11:30 - 11:45 <b>Coffee Break</b>	
11:45 - 13:15 <b>SESSION:</b> Wireless Communications 2	11:45 - 13:15 <b>SPECIAL SESSION:</b> Electromagnetic Guiding and Radiating Structures and Devices

## Monday, 28 September 2009

09:00 - 09:30      **Registration**

**HALL A**

**Monday, 28 September 2009**

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

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

10:00 - 11:00      **PLENARY SESSION 1: Keynote Talks**

Session Chair:      **Branka Zovko-Cihlar**

**Mr. David Wood, Head of Emerging Media, EBU; SWITZERLAND**

What strategy and research agenda for Europe in 'new media'?

11:00 - 11:30      **WELCOME COCKTAIL**

11:30 - 12:30      **PLENARY SESSION 2: Keynote Talks**

Session Chair:      **Branka Zovko-Cihlar**

**Prof. Borivoj Modlic, University of Zagreb, Faculty of EE and Comp; CROATIA**

Digital Dividend - Opportunities for New Mobile Services

**Prof. Gregor Rozinaj, Slovak University of Technology; SLOVAKIA**

The Role of Multimedia in Intelligent Human Machine Interface

12:30 - 14:00      **Lunch Break**

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

Session Chair:      **Krešimir Delač**

**Jelena Bozek, Mario Mustra, Mislav Grgic; CROATIA**

A Survey of Mammographic Image Processing Algorithms for Bilateral Asymmetry Detection

**Mario Mustra, Jelena Bozek, Mislav Grgic; CROATIA**

Nipple Detection in Craniocaudal Digital Mammograms

**Emil Dumic, Mario Mustra, Sonja Grgic, Goran Gvozden; CROATIA**

Image Quality of 4:2:2 and 4:2:0 Chroma Subsampling Formats

**Marijana Novakovic, Lidija Mandic, Kresimir Delac; CROATIA**

Rendering Intent and Color Reproduction

**Mario Vranješ, Snježana Rimac-Drlje, Ognjen Nemčić; CROATIA**

Influence of Foveated Vision on Video Quality Perception

**Ivica Kuzmanić, Joško Šoda, Zlatan Kulenović, Mirjana Vujović; CROATIA**

Inversion of Wavelet Coefficients in Oil Spills Detection in Radar Images for Environment Risk Reduction in Adriatic Sea

15:30 - 16:00      **Coffee Break**

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

Session Chair:      **Krešimir Delač**

**Michal Kawulok; POLAND**

Adaptive skin detector enhanced with blob analysis for gesture recognition

**Naser Zaeri; KUWAIT**

Memory Efficient Face Recognition Using Compressed Phase Component

**Antonis Mairgiotis, Nikolaos Galatsanos, Yongyi Yang; GREECE / USA**

Robust watermark detection based on a new spatially weighted total variation based image prior

**Darko Stipaničev, Marin Bugarić, Ljiljana Bodrožić; CROATIA**

Integration of Forest Fire Video Monitoring System and Geographic Information System

18:00 - 21:00      **GUIDED ZADAR SIGHTSEEING**  
Meeting Point: Hotel "Funimation", Main Entrance, 18:00

21:00                **ELMAR-2009 SYMPOSIUM DINNER (with cocktail and concert)**  
Hotel "Funimation" Restaurant

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

Session Chair:      **Sonja Grgic**

**Matej Loncaric, Dijana Tralic, Maja Brzica, Juraj Petrovic, Sonja Grgic; CROATIA**  
Managing Mixed HD and SD Broadcasting

**Sanja Juric, Vedran Klepac; CROATIA**  
Gamma and Gamma Correction in Television Production

**Srecko Kunic, Vedran Klepac, Sanja Juric; CROATIA**  
Measuring of Parameters of Digital TV Signal

**Javier Silvestre-Blanes; SPAIN**  
Image Codec selection in Real-Time Multimedia Transmission Applications

**Zlatan Begić, Melika Bolić, Elmir Šećerbegović; BOSNIA AND HERZEGOVINA**  
Dynamic Approach in Developing Multicast Network

**Melika Bolić, Zlatan Begić, Slađana Zorić; BOSNIA AND HERZEGOVINA**  
Advanced Infrastructure - Based Streaming Media Overlay Networks

**Radovan Ridzoň, Dušan Levický; SLOVAKIA**  
Multimedia security and multimedia content protection

15:30 - 16:00      **Coffee Break**

16:00 - 17:30      **SESSION: Telecommunications 1**

Session Chair:      **Pavol Podhradský**

**Ján Benkovič, Ivan Kotuliak, Peter Trúchly; SLOVAKIA**  
Comparison of DSR and DYMO routing protocols in building environments

**Alen Begović, Narcis Behlilović; BOSNIA AND HERZEGOVINA**  
An Impact of Adjacent ADSL Signals on Capacity of Copper Twisted Pair Channel

**Namir Škaljo, Alen Begović, Narcis Behlilović; BOSNIA AND HERZEGOVINA**  
Methods of Locating Galvanic Faults in Symmetrical Copper Pair Cables in DSL systems

**Rastislav Róka; SLOVAKIA**  
The Utilization of the Iterative Water-Filling algorithm for the Signal Transmission by means of the VDSL technology

**Haris Hodzic, Elmir Secerbegovic; BOSNIA AND HERZEGOVINA**  
Online constraint-based routing as support for MPLS Traffic Engineering

18:00 - 21:00      **GUIDED ZADAR SIGHTSEEING**  
Meeting Point: Hotel "Funimation", Main Entrance, 18:00

21:00      **ELMAR-2009 SYMPOSIUM DINNER (with cocktail and concert)**  
Hotel "Funimation" Restaurant



14:00 - 15:30

**SESSION:  
Power Electronics and Automation & Ship Electronic Systems**Session Chair: **Antonio Šarolić****Zlatko Živković, Antonio Šarolić; CROATIA**

RCS Simulation of a Shipboard Cylindrical Trihedral Radar Reflector in the S-Band

**Cosmin Popa; ROMANIA**

Multiplier Circuit with Improved Linearity Using FGMOS Transistors

**Radu-Emil Precup, Mircea-Bogdan Rădac, Stefan Preitl,  
Emil M. Petriu, János Fodor; ROMANIA / CANADA / HUNGARY**

On the Optimal Design of Low-Cost Fuzzy Controllers for Ship Course Control

**Renato Ivčič, Irena Jurdana, Zoran Mrak; CROATIA**

Longitudinal ship's hull strength monitoring with optical fiber sensors

**Slavko Šimundić, Marija Boban, Zoran Ćosić; CROATIA**

Simulation Modelling of Reliability of the Ship Equipment Technical Systems

**Assen V. Krumov; BULGARIA**

Maximum Torque High Speed Microprocessor Based Control of Induction Motors

**V. Kanakakis, P. Spanoudakis, N. Tsourveloudis; GREECE**

Optimized Design of an Unmanned Surface Vehicle

15:30 - 16:00

**Coffee Break**

16:00 - 17:30

**SESSION: e-Learning and m-Learning**Session Chair: **Snježana Rimac-Drlje****Peter Sosnin; RUSSIA**

Question-Answer Expert System for Ship Collision Avoidance

**Divna Krpan, Slavomir Stankov; CROATIA**

Standards and Specifications for E-Learning Systems

**Slavica Cosovic Bajic, Kresimir Kavran; CROATIA**

C# Tools for Communications Engineering

**Assen V. Krumov; BULGARIA**

An Algorithm for Simulation of D.C. Motors with Electronic Commutation

18:00 - 21:00

**GUIDED ZADAR SIGHTSEEING**Meeting Point: Hotel "Funimation", Main Entrance, 18:00

21:00

**ELMAR-2009 SYMPOSIUM DINNER (with cocktail and concert)**  
Hotel "Funimation" Restaurant

## Tuesday, 29 September 2009

**HALL A**

**Tuesday, 29 September 2009**

10:00 - 11:30      **SESSION: Image and Video Processing 3**

Session Chair:      **Krešimir Delač**

**Hannes Jung, Wilhelm Burger; AUSTRIA**

A Spectral Retouching Tool for Removing Repetitive Image Noise

**Jonatan Lerga, Victor Sucic, Damir Sersic; CROATIA**

Image Denoising Based on the One-Dimensional LPA-RICI Method

**Huiyu Zhou, Gerald Schaefer, Tangwei Liu, Faquan Lin; UNITED KINGDOM / CHINA**

A combined gradient vector flow and mean shift approach to image segmentation

**Enrique Alegre, Víctor González-Castro, Sir Suárez, Manuel Castejón; SPAIN**

Comparison of Supervised and Unsupervised Methods to Classify Boar Acrosomes Using Texture Descriptors

**Ioannis Kypraios; UNITED KINGDOM**

A comparative analysis of the hybrid optical neural network-type filters performance within cluttered scenes

12:30 - 21:00      **EXCURSION BY SHIP (lunch and dinner included)**

Meeting Point: Hotel "Funimation", Main Entrance, 12:30

10:00 - 11:30

**SESSION: Telecommunications 2**Session Chair: **Pavol Podhradský****S. Voliotis, H.C. Leligou, Theodore Zahariadis; GREECE**

Incorporating trust in location-based routing protocols

**Shkelzen Cakaj, Muharrem Shefkiu, Shyqyri Haxha; KOSOVA**

Implementation of Prepaid Services in Kosovo's Fixed Network

**Elmir Šećerbegović, Zlatan Begić, Haris Hodžić; BOSNIA AND HERZEGOVINA**

Simulation of Advanced Bandwidth Broker Implementation in PLC networks

**Oliver Jukić, Vlado Halusek, Marijana Špoljarić; CROATIA**

Low-Level Alarm Filtration Based on Alarm Classification

**Sladana Zorić, Melika Bolić; BOSNIA AND HERZEGOVINA**

QoS signalling in IP multimedia subsystem of UMTS

**Sebastian Schumann, Ondrej Lábaj, Pavol Podhradský; SLOVAKIA**

Building complex Voice over IP (VoIP) applications based on open-source

12:30 - 21:00

**EXCURSION BY SHIP** (lunch and dinner included)Meeting Point: Hotel "Funimation", Main Entrance, 12:30

10:00 - 11:30

**SESSION: Speech and Audio Processing**Session Chair: **Gregor Rozinaj****Dalibor Mitrović, Matthias Zeppelzauer, Horst Eidenberger; AUSTRIA**

On Feature Selection in Environmental Sound Recognition

**Kristian Jambrošić, Marko Horvat, Marijan Bogut; CROATIA**

Comparison of impulse sources used in reverberation time measurements

**Josef Kornycky, Banu Günel, Ahmet Kondoz; UNITED KINGDOM**

Robustness Comparison of Moving Convolutional Source Separation Techniques

**Mia Suhanek, Kristian Jambrošić, Dražen Miličević; CROATIA**

A comparison of two procedures for in-situ measurements of sound absorption coefficient

**Hrvoje Domitrović, Miljenko Krhen, Dražen Miličević; CROATIA**

Sound in Multimedia Systems

**Hrvoje Domitrović, Siniša Fajt, Miljenko Krhen; CROATIA**

Multimedia Room Acoustical Design

**Martin Turi Nagy, Gregor Rozinaj, Peter Hvišč; SLOVAKIA**

Parametrization of a Slovak Speech Database for Mobile Platform Speech Synthesis

12:30 - 21:00

**EXCURSION BY SHIP (lunch and dinner included)**Meeting Point: Hotel "Funimation", Main Entrance, 12:30

## Wednesday, 30 September 2009

**HALL A**

**Wednesday, 30 September 2009**

10:00 - 11:30      **SESSION: Wireless Communications 1**

Session Chair:      **Borivoj Modlic**

**Krešimir Šakić, Miran Gosta, Sonja Grgić; CROATIA**

Cross-border interference between broadcasting and mobile services

**Qi Wang, Sebastian Caban, Christian Mehlführer, Markus Rupp; AUSTRIA**

Measurement Based Throughput Evaluation of Residual Frequency Offset Compensation in WiMAX

**Marko Djurdjevic, Borivoj Modlic, Gordan Sisul, Mario Cvitkovic; CROATIA**

Fixed WiMAX Downlink Simulation Model

**Marek Golha, Ondrej Lábaj, Sebastian Schumann, Pavol Podhradský; SLOVAKIA**

Seamless WiFi-roaming in IMS network

**Zeljko Tabakovic, Sonja Grgic, Mislav Grgic; CROATIA**

Dynamic Spectrum Access in Cognitive Radio

**Zlatko Jelacic, Hrvoje Balasko, Mislav Grgic; CROATIA**

Cognitive Radio and UHF Spectrum Revitalization

**Ervin Zentner, Sonja Zentner Pilinsky; CROATIA**

Performance limitations in an OFDM system due to non-linearities

11:30 - 11:45      **Coffee Break**

11:45 - 13:15      **SESSION: Wireless Communications 2**

Session Chair:      **Borivoj Modlic**

**Artūras Medeišis; LITHUANIA**

Monte-Carlo Based Interference Prediction from Earth Stations On-Board Vessels (ESV) to Terrestrial Point-to-Point Microwave Links

**Davor Vinko, Tomislav Švedek, Marijan Herceg; CROATIA**

Effects of Power Consumption and Modulation of the Passive RFID Tag on the Transmission Range of Backscattered Signal

**Hamideh Dashti, M. H. Neshati, F. Mohanna; IRAN**

Comparative Investigation of Dielectric Image Line-Slot and Microstrip-Slot Coupled Rectangular Dielectric Resonator Antenna

**Alina Buleandra, Teodor Petrescu, Simona Halunga, Octavian Fratu; ROMANIA**

Comparison of SARs Induced in a Human Head Exposed to the Radiation of a Dipole Antenna

**Ivan Vilović, Nikša Burum, Đorđe Milić; CROATIA**

Using Particle Swarm Optimization in Training Neural Network for Indoor Field Strength Prediction

**Radovan Zentner, Ana Katalinić, Robert Nagy; CROATIA**

Qualitative Comparison of GSCMs with Single-, Mixed- and Multiple-Bounce Schemes

10:00 - 11:30

**SPECIAL SESSION: Computer Vision in Art**Session Chair: **Borut Batagelj****Matjaž Jogan, Mirjana Batinić, Ivan Fućak, Jernej Modic, Damjan Pipan, Marko Račeta; SLOVENIA**  
A Place of Home: An Interactive Audio Installation**Matjaž Poljanšek, Nataša Knez, Sonja Vuk, Borut Batagelj; SLOVENIA**  
Which game are you playing? - An interactive and educational video show**Ana Čigon, Kaja Vidmar, Tina Maček, Erik Dovgan, Miha Šinkovec, Uroš Klopčič, Borut Batagelj; SLOVENIA**  
0:1 virtual-real duel**Matjaž Kosmač, Andrej Krota, Borut Batagelj; SLOVENIA**  
Puzzle Game**Narvika Bovcon, Aleš Vaupotič; SLOVENIA**  
New Media Spaces and New Media Objects**Borut Batagelj, Jakob Marovt, Miha Troha, Dominik Mahnič; SLOVENIA**  
Digital Airbrush

11:30 - 11:45

**Coffee Break**

11:45 - 13:15

**SPECIAL SESSION:  
Electromagnetic Guiding and Radiating Structures and Devices**Session Chair: **Silvio Hrabar****Ivan Vilović, Ante Konjuh, Nikša Burum; CROATIA**  
Filter Design Using Insertion Loss Method and Particle Swarm Optimization Algorithm**Tin Komljenovic, Nikša Burum, Zvonimir Sipus; CROATIA**  
Raytracing Analysis of Lens Antennas - Practical Approach**Slavko Rupcic, Zvonimir Sipus, Vanja Mandric; CROATIA**  
Input Admittance of Circular Waveguide Opening Mounted on Dielectric-Covered Grounded Spherical Surface**Branimir Ivšić, Davor Bonefačić, Juraj Bartolić; CROATIA**  
3D Electromagnetic Sensor Based on Shorted Stacked Patches**Silvio Hrabar, Davor Zaluski, Damir Muha; CROATIA**  
Homogenization of SRR-loaded Metamaterial Waveguide - Current State of the Art

**Silvio Hrabar, Mario Martinis; CROATIA**

Propagation in Waveguide filled with Anisotropic MNG Metamaterial with Hyperbolic Dispersion - Rigorous Analysis and Physical Interpretation

**Marko Bosiljevac and Zvonimir Šipuš; CROATIA**

Novel Photonic Guiding Structures - Analysis and Measurements

**Silvio Hrabar, Damir Muha, Davor Zaluski; CROATIA**

Towards Investigation of Magnetic Response of Circular Arrangement of Plasmonic Spheres by Scaled Experiments in RF Regime