



**UNIVERSITY OF ZENICA**  
**FACULTY OF MECHANICAL ENGINEERING IN ZENICA**  
 Bosnia and Herzegovina



**UNIVERSITY OF  
 BELGRADE**  
**TECHNICAL FACULTY**  
 BOR  
 Serbia



**UMWELT-CAMPUS  
 BIRKENFELD**  
**TRIER UNIVERSITY OF  
 APPLIED SCIENCES**  
 Germany

**5<sup>th</sup> International Scientific Conference  
 Environmental and Material Flow Management**



**Final program**



**DELTA PETROL®**



Tempus

**ZGI**

ZAGREBINSPEKT  
 podružnica za kontrolu i inspekciju d.o.o. Mostar



05-07 November 2015  
 Zenica, Bosnia and Herzegovina

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## MAIN TOPICS

Environmental Engineering  
Renewable Energy Sources and Environmental Aspects  
Environmental Management  
ISO 14001 and EMAS  
Material Flow Management  
Life Cycle Analysis  
Sustainable Development  
Industrial Ecology  
Energy Management  
Cleaner Production  
Eco-efficiency

## PAPER PRESENTATION

**Presentation** is limited to 10 minutes+5 minutes for discussion. Presenters can use overhead transparencies or Power Point slide shows. Papers can be presented in English or the Languages of BCS (Bosnian, Croatian or Serbian.).

## INTERNATIONAL SCIENTIFIC AND REVIEW COMMITTEE

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**Duraković Jusuf**, PhD, B&H  
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**Zessner Matthias**, PhD, Austria  
**Živković Dragana**, PhD, Serbia

# SCHEDULE OF EVENTS

## **THURSDAY November 5<sup>th</sup>**

**18.00 - 20.00 Registration and Welcome Drink**

## **FRIDAY November 6<sup>th</sup>**

**09.30 - 10.00 Registration of Participants**

**10.00 - 10.30 Conference Opening and Welcome Speech**

**10.30 - 12.00 Keynote Paper presentations**

**12.00 - 12.30 Coffee Break**

**12.30 - 14.00 Two parallel sessions of presentations (I and II)**

**14.00 - 15.30 Lunch Break**

**15.30 - 17.00 Two parallel sessions of presentations (III and IV)**

**17.00 - 17.30 Coffee Break**

**19.00 Diner**

# SCHEDULE OF PAPER PRESENTATIONS

## THURSDAY, November 5<sup>th</sup>

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## FRIDAY, November 6<sup>th</sup>

10.30-12.00 Keynote Paper presentations

Chairmen: **D. Petković, Š. Goletić, I. Mihajlović**

1. ECOLOGICAL MACHINING  
**Sabahudin Ekinović, Edin Begović, Halim Prcanović, Ibrahim Plančić**
2. ASPECTS OF MECHANICAL TREATMENT OF WASTE WATER  
**Michael Kuhn (Germany)**
3. CALCULATING THE OPTIMAL MIXTURE OF COPPER  
CONCENTRATES BASED ON THE IMPURITIES CONTENT  
**Ivan Mihajlović, Nada Štrbac, Ivan Jovanović, Đorđe Nikolić, Živan Živković (Serbia)**
4. Presentacije sponzora

## FRIDAY, November 6<sup>th</sup>

12.30-14.00 Session I

Chairman: **D. Petković, Dj. Nikolić, B. Kosec**

1. EXPERIMENTAL INVESTIGATION OF QUARTENARY Zn-Al-Sn-Ga  
ECOLOGICAL ALLOYS  
**Ljubiša Balanović, Dragana Živković, Dragan Manasijević (Serbia), Jožef Medved (Slovenia), Ivana Marković, Uroš Stamenković (Serbia)**
2. ELECTROCHEMICAL CORROSION INHIBITION AS A PREVENTING  
MEASURE OF CORROSION  
**Enkela Nočka, Majlinda Alcani (Albania)**
3. STUDY OF HYDROGEN PENETRATION ROLE IN METAL BRITTLE  
METAL  
**Enkela Nočka, Altin Dorri (Albania)**

4. BIOLOGICAL TREATMENT OF CONTAMINATED SOIL FROM THE SITE OF NATO MILITARY BASE AT PETROVEC AIRPORT & RESEARCH AND DEVELOPMENT ACTIVITIES IN BIOREMEDIATION  
**Petra Najmanova, Jan Vanek, Iveta Cepelakova (Czech Republic), Josif Tanevski (Macedonia)**
5. NEXT GENERATION SINTERING TECHNOLOGIES – NEW DEVELOPMENTS TO ACHIEVE ENVIRONMENTAL FRIENDLY SINTER PRODUCTION  
**Edmund Fehringer, Johann Reidetschläger, Marlene Mühlböck (Austria)**
6. INDUSTRIAL ROBOTS AS A MAIN INITIATOR OF MODERNIZATION AND AUTOMATION OF MANUFACTURING PROCESSES IN AUTOMOTIVE INDUSTRY  
**Isak Karabegović, Edina Karabegović, Mehmed Mahmić, Ermin Husak**
7. BIBLIOMETRIC ANALYSIS OF RECENT ACHIEVEMENTS IN WASTE WATERS TREATMENT USING BIOSORBENTS  
**Dragana Živković, Milan Gorgievski, Snežana Šerbula, Nada Štrbac, Miroslav Sokić, Milica Niculović (Serbia)**
8. ECOLOGICAL EFFICIENCY OF SUSTAINABLE USE OF PESTICIDES IN INTEGRATED APPLE PRODUCTION IN CROATIA  
**Ines Pohajda, Ana Vrankulj, Katarina Lukšić (Croatia)**
9. DOCTORAL STUDY PROGRAM “ENVIRONMENTAL PROTECTION”  
**Borut Kosec, Milan Bizjak, Sergeja Mitič, Mirko Soković (Slovenia)**
10. THE QUALITY OF AMBIENT AIR OF COPPER AND FERROUS METALLURGY  
**Snežana Šerbula, Dragana Živković (Serbia), Šefket Goletić, Nusret Imamović (B&H)**
11. CO-COMBUSTION MIDDLE BOSNIA COAL WITH WOODY BIOMASS IN TERMS OF APPLICATION OF DIFFERENT PRIMARY MEASURES IN THE FURNACE  
**Nihad Hodžić, Izet Smajević, Anes Kazagić (B&H)**

**FRIDAY, November 6<sup>th</sup>**

**12.30-14.00 Session II**

**Chairman: Š. Goletić, Ž. Janković, B. Kosec**

1. LIFE CYCLE APPROACH – A NEW OPPORTUNITY FOR REGIONAL MANUFACTURERS TO DEAL WITH ENVIRONMENTAL ISSUES  
**Srdjan Glisovic (Serbia), Zarko Jankovic (Serbia), Suvad Isakovic (B&H), Aleksandra Petkovic (Serbia)**

2. PARTICLES CHARACTERIZATION WITH STATIC IMAGE ANALYSIS METHOD  
**Milana Ilić, Igor Budak (Serbia), Borut Kosec (Slovenia), Boris Agarski, Dorde Vukelić, Janko Hodolić (Serbia)**
3. FOREST TYPE CLASSIFICATION IN THE NATIONAL PARK OF BIOGRADSKA GORA BY INTERGRATING SATELLITE IMAGES, DIGITAL GEOGRAPHICAL DATA AND FIELD MEASUREMENTS  
**Milić Ćurović (Montenegro), Milan Medarević (Serbia), Velibor Spalević (Montenegro), Enrico Borgogno, Renzo Motta (Italy)**
4. IMPACT OF INDUSTRIAL EMISSIONS TO POLLUTION OF SOIL  
**Šefket Goletić, Nusret Imamović (B&H)**
5. THE INFLUENCE OF LIMING AND PHOSPHATE SOIL TO CHANGE THE pH VALUE OF THE SOIL AS AN INFLUENTIAL FACTOR IN THE BIOAVAILABILITY OF HEAVY METALS  
**Magda Maslić, Šefket Goletić (B&H)**
6. EXAMINE THE POSSIBILITIES OF APPLICATION OF CERTAIN PLANTS IN THE PROCEDURE PHYTOREMEDIATION SOIL CONTAMINATED WITH HEAVY METALS  
**Farzet Bikić, Amira Pašalić (B&H)**
7. COST-BENEFIT ANALYSIS OF PRIMARY TREATMENT RECYCLABLE MATERIALS  
**Muvedet Šišić, Nusret Imamović, Šefket Goletić, Džafer Dautbegović**
8. ENVIRONMENTAL PLANNING AT THE LOCAL LEVEL FOR MORE EFFICIENT WASTE MANAGEMENT  
**Nermina Skejović-Hurić, Sanda Midžić-Kurtagić (B&H)**
9. CEMENT FACTORY OF KAKANJ AND THE SUSTAINABLE DEVELOPMENT  
**Almir Bajtarević (B&H)**
10. CIRCULAR PELLETIZING TECHNOLOGY „CPT“ THE WORLD'S MOST COMPACT IRON ORE PELLETIZING PLANT  
**Zijad Mandara (Austria)**
11. ENERGY INTENSITY AS AN ENVIRONMENTAL AND ENERGY MANAGEMENT TOOL IN FOUNDRIES IN THE FEDERATION OF BOSNIA AND HERZEGOVINA  
**Nafija Šehić Mušić, Aida Kalajdzisalihović, Šefket Goletić (B&H)**

**FRIDAY, November 6<sup>th</sup>**

**15.30-17.00 Session III**

**Chairman: M. Imamović, I. Smajević, F. Hadžikadunić**

1. PULSE COMBUSTION IN THE FUNCTION OF INCREASE OF POWER PLANTS ENERGY EFFICIENCY  
**Izet Smajević, Nihad Hodžić (B&H)**
2. CURENT STATE-OF-ART OF THE ENERGY SAVING RESEARCH IN BOSNIA AND HERZEGOVINA AND POSSIBLE FUTURE PRIORITIES  
**Semin Petrović (B&H)**
3. ENVIRONMENTALLY FRIENDLY POLYMETALLIC SULPHIDE CONCENTRATE TREATMENT BY LEACHING IN HYDROGEN PEROXIDE AND SULFURIC ACID SOLUTION  
**Nada D. Štrbac, Miroslav D. Sokić, Branislav R. Marković, Dragana T. Živković, Željko J. Kamberović, Vladislav Lj. Matković (Serbia)**
4. RECYCLING OF FERROUS BY-PRODUCTS IN IRON AND STEEL PLANTS  
**Jörg Schwelberger, Chrisitan Brunner, Alexander Fleischanderl, Zijad Mandara (Austria)**
5. ACT OF ANAEROBIC CO-DIGESTION OF FOOD WASTE AND ORGANIC WASTEWATER SLUDGE ON BIOGAS PRODUCTION  
**Ena Husić, Irem Silajdžić, Nusret Imamović (B&H)**
6. CHARACTERIZATION OF GROUND AND SURFACE WATERS AT THE LANDFILL SITE “BRIJESNICA”  
**Šerifović Edin, Goletić Šefket, Nurudin Avdić (B&H)**
7. MONITORING OF WATER AND SOIL QUALITY DURING THE MOTORWAY CONSTRUCTION ON CORRIDOR VC, SUBSECTION ZVIROVIĆI-BIJAČA  
**Sandro Zovko, Sanda Zorić (B&H), Igor Jokanović (Serbia), Mustafa Imamović (B&H)**
8. OVRVIEW OF CURRENT METHODS OF BREWERY WASTEWATER TREATMENT  
**Vesna Medić, Miodrag Hadžistević, Mirjana Vojinović-Miloradov, Janko Hodolić (Serbia)**
9. SURVEY OF HEAVY METAL POLLUTION AND RISK ASSESSMENT OF SPREČA RIVER SEDIMENTS ASSESSMENT OFER SEDIMENTS  
**Abdel Đozić, Amira Cipurković (B&H)**



10. TION OF BAYER ELECTROFILTER FINES IN THE PRODUCTION OF MULLITE

**Marina Jovanović, Adnan Mujkanović, Erna Tutić**

11. CORRELATION OF AVERAGE ANNUAL CONCENTRATION OF SO<sub>2</sub> AND INHALATION BRONCHODILATATION THERAPY USE IN CHILDREN UP TO 6 YEARS OF AGE (2000. – 2014.)

**Smajil Durmišević, Jasminka Durmišević-Serdarević, Melita Lelić, Jasmin Durmišević (B&H)**

**FRIDAY, November 6<sup>th</sup>**

**15.30-17.00 Session IV**

**Chairman: Š. Goletić, J. Sredojević, Dž. Dautbegović**

1. LEMENTATION OF THE INDUSTRIAL EMISSIONS DIRECTIVE 2010/75 / EU - IED IN BOSNIA AND HERZEGOVINA - COOPERATION BETWEEN THE STATE AND THE INDUSTRIAL OPERATORS

**Suada Numić, Zineta Mujaković (B&H)**

2. IRONMENTAL - FRIENDLY SELF - COMPACTING CONCRETE CONTAINING CALCAREOUS FLY ASH

**Adnan Mujkanović, Ilhan Bušatlić, Marina Jovanović, Dženana Bečirhodžić, Nevzet Merdić (B&H)**

3. SELF-COMPACTING CONCRETE – A SUSTAINABLE CONSTRUCTION MATERIAL

**Adnan Mujkanović, Marina Jovanović, Dženana Bečirhodžić, Amna Karić (B&H)**

4. MODELLING OF AIRBORNE DUST DISPERSION EMITTED FROM OPENCAST MINING IN ORDER TO ASSESS ITS IMPACT ON THE AIR QUALITY

**Ekrem Bektašević, Šefket Goletić, Enver Hasić, Zuhdija Kešetović (B&H)**

5. ANALYSIS AND EVALUATION OF EMISSIONS OF POLLUTANTS FROM BOILER IN ZENICA VALLEY

**Vehid Birdahić, Nusret Imamović, Muvedet Šišić (B&H)**

6. MEASURING EMISSIONS OF POLLUTANTS IN THE EXHAUST GAS DURING TEST OPERATION OF THE INCINERATION PLANT FOR ANIMAL WASTE

**Džafer Dautbegović, Šefket Goletić (B&H)**

7. ANALYSIS OF THE STATE OF THE ENVIRONMENT USING DPSIR MODEL

**Šefket Goletić, Nusret Imamović (B&H)**

8. RESEARCH OF SOIL BIOREMEDIATION USING BIOCOMPLEX-W SOLUTION IN LABORATORY CONDITIONS  
**Sanela Beganović, Halim Prčanović, Mirnes Duraković (B&H)**
9. ENVIRONMENTAL ASPECTS OF WASTE MANAGEMENT IN THE PRODUCTION OF BAKERY PRODUCTS OF INPEK COMPANY AD PODGORICA  
**Vesna Boljević (Montenegro), Darko Petković, Ibrahim Plančić (B&H)**
10. GREEN ECONOMY MANAGEMENT AND NEW WAY OF BUSINESS STRATEGY  
**Kristijan Ristić (Serbia)**
11. IMPLEMENTATION OF LCA FOR ENVIRONMENTAL FRIENDLY IMPROVEMENT OF PRODUCTS IN AUTOMOTIVE INDUSTRY  
**Dragan Gogić, Blaž Karpe, Aleš Nagode, Igor Budak, Zorana Tanasić (Serbia)**
12. THERMAL TREATMENT OF WASTE IN EUROPE  
**Tomislav Lukić, Suada Numić, Svjetlana Stanić-Koštroman, Nevenko Herceg (B&H)**

**SATURDAY, November 6<sup>th</sup>**

**09.30-11.00 Visit to the Regional Landfill Zenica**

**11.00-15.00 Visit to the Fortress Vranduk and Lunch**



