

$$S+M(L)=KI^{13}$$

Fakultet
kemijskog
inženjerstva i
tehnologije

Hrvatsko
društvo
kemijskih
inženjera i
tehnologa

XIII. susret mladih kemijskih inženjera

$$S+M(L)=KI^{13}$$

20. i 21.
veljače
2020.

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PROGRAM SKUPA

Conference Program

XIII Meeting of Young Chemical Engineers

POKROVITELJI | *UNDER THE AUSPICES OF*



Ministarstvo znanosti i obrazovanja



Sveučilište u
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HRVATSKI INŽENJERSKI SAVEZ
CROATIAN ENGINEERING ASSOCIATION

KNJIGA SAŽETAKA |
BOOK OF ABSTRACTS



PROGRAM SKUPA |
CONFERENCE PROGRAMME

MJESTO ODRŽAVANJA | VENUE

Fakultet kemijskog inženjerstva i tehnologije | *Faculty of Chemical Engineering and Technology*,
Zagreb, Marulićev trg 20

PRIJAVA SUDIONIKA | REGISTRATION

Hodnik Velike dvorane – ulaz iz zgrade | *Hall A – entrance inside the building*

Četvrtak, 20. veljače 2020. |
Thursday, Feb 20, 2020

08:00 – 17:00

Petak, 21. veljače 2020. |
Friday, Feb 21, 2020

08:00 – 10:00

OTVARANJE SUSRETA | OPENING CEREMONY

Velika dvorana | *Hall A*

Četvrtak, 20. veljače 2020. |
Thursday, Feb 20, 2020

09:00 – 10:00

USMENA IZLAGANJA | ORAL PRESENTATIONS

Velika dvorana, prema rasporedu | *Hall A, according to timetable*

Četvrtak, 20. veljače 2020. |
Thursday, Feb 20, 2020

10:00 – 16:45

Petak, 21. veljače 2020. |
Friday, Feb 21, 2020

09:00 – 16:45

POSTERI | POSTERS

Predavaonica i hodnik – prvi kat, prema rasporedu |
Lecture room and hallway – first floor, according to timetable

Četvrtak, 20. veljače 2020. |
Thursday, Feb 20, 2020

09:00 – 17:45 posteri broj | *poster numbers 1 – 58*

Petak, 21. veljače 2020. |
Friday, Feb 21, 2020

09:00 – 13:30 posteri broj | *poster numbers 59 – 124*

Postere je potrebno postaviti na panoe na dan definiran rasporedom ujutro (8:00 – 9:00 h) i skinuti na kraju dana. | *Posters should be placed on boards in the morning (8:00 – 9:00 h) according to schedule and removed at the end of the day.*

POSTERSKA PRIOPĆENJA | POSTER PRESENTATIONS

Četvrtak, 20. veljače 2020. |
Thursday, Feb 20, 2020

16:45 – 17:45 posteri broj | *poster numbers 1 – 58*

Petak, 21. veljače 2020. |
Friday, Feb 21, 2020

12:15 – 13:15 posteri broj | *poster numbers 59 – 124*

Mole se autori da budu pokraj postera za vrijeme posterske sekcije. |
Authors are kindly invited to stand by their posters during poster session.

DODJELA NAGRADA I ZATVARANJE SUSRETA | CLOSING CEREMONY AND AWARDS

Velika dvorana | *Hall A*

Petak, 21. veljače 2020. |

Friday, Feb 21, 2020

17:00 – 17:45

DOMJENAK | BANQUET + STANKA ZA KAVU | COFFEE BREAK

Klub nastavnika – podrum | *The Faculty Club – basement*

09:00 – 10:00 Otvaranje Susreta | *Opening ceremony*

Dvorana | *Venue*: Velika dvorana | *Hall A*

PLENARNO IZLAGANJE | *PLENARY LECTURE*

Moderatori | *Chairs*: Igor Dejanović, Domagoj Vrsaljko

10:00 – 11:00 Jens-Uwe Repke
TOWARDS INTENSIFIED AND SUSTAINABLE PROCESSES – A SYSTEMATIC APPROACH FOR IDENTIFICATION AND ANALYSIS OF PLANT DESIGN AND OPERATION

11:00 – 11:30 STANKA ZA KAVU | *COFFEE BREAK*

POZVANA IZLAGANJA | *INVITED LECTURES*

Moderatori | *Chairs*: Igor Dejanović, Domagoj Vrsaljko

11:30 – 12:00 Blaž Likozar
HOW CAN (MULTI-SCALE) MODELLING, SIMULATIONS AND ENGINEERING HELP BIO-REFINING?

12:00 – 12:30 Thomas Grützner
NEXT GENERATION SEPARATION UNITS – RESEARCH AT ULM UNIVERSITY

12:30 – 13:00 Ozren Wittine
KRAJ SVIJETA JE BLIZU! (ZA ŠARŽNE PROCESE)
END OF THE WORLD IS NEAR! (FOR BATCH PROCESSES)

13:00 – 13:30 STANKA ZA KAVU | *COFFEE BREAK*

USMENA IZLAGANJA | *ORAL PRESENTATIONS*

Analiza, sinteza i vođenje procesa | *Process analysis, synthesis and design*

Moderatori | *Chairs*: Domagoj Vrsaljko, Katarina Mužina

13:30 – 13:45 Ulrich Preißinger, Goran Lukač, Igor Dejanović, Thomas Grützner
CONSIDERATIONS ON THE DESIGN OF A PILOT-PLANT-SCALE SIMPLIFIED MULTIPLE DIVIDING WALL COLUMN

13:45 – 14:00 Nenad Zečević, Nenad Bolf
DIGITALNI MODEL PRIMARNOG PARNOG REFORMINGA PRIRODNOG PLINA U PROIZVODNJI SINTEZNOG PLINA
DIGITAL TWIN MODEL OF PRIMARY STEAM REFORMER OF NATURAL GAS IN SYNGAS PRODUCTION

Biokemijsko inženjerstvo | *Biochemical engineering*

Moderatori | *Chairs*: Domagoj Vrsaljko, Katarina Mužina

14:00 – 14:15 Nevena Milčić, Marko Pranić, Martina Sudar, Zvezdana Findrik Blažević, Maja Majerić Elenkov
KINETIČKA KARAKTERIZACIJA HALOGENHIDRIN-DEHALOGENAZE PRI SINTEZI FLUOROAROMATSKIH VICINALNIH AZIDOALKOHOLA
KINETIC CHARACTERIZATION OF HALOHYDRIN DEHALOGENASE IN THE SYNTHESIS OF FLUOROAROMATIC VICINAL AZIDOALCOHOLS

- 14:15 – 14:30** **Martina Sudar**, Nevena Milčić, Marina Svetec Miklenić, Ivan-Krešimir Svetec, Maja Majerić Elenkov, Zvezdana Findrik Blažević
PRIPREMA BIOKATALIZATORA
PREPARATION OF BIOCATALYSTS
- 14:30 – 14:45** **Darijo Šibalić**, Anita Šalić, Bruno Zelić, Marina Tišma
RAZVOJ TESTA ZA MJERENJE AKTIVNOSTI ENZIMA LIPAZE PORIJEKLOM IZ
Thermomyces lanuginosus
DEVELOPMENT OF THE ASSAY FOR MEASUREMENT OF Thermomyces lanuginosus
LIPASE ACTIVITY

14:45 – 15:00 **STANKA ZA KAVU | COFFEE BREAK**

Mehanički, toplinski i separacijski procesi | Mechanical, thermal and separation processes

Moderatori | *Chairs*: Zvonimir Katančić, Matija Cvetnić

- 15:00 – 15:15** **Edina Ibrić**, Ajla Mandalović, Samela Selimović, Zvonimir Jažo, Zehrudin Osmanović
EKSTRAKCIJA ETERIČNOG ULJA IZ SMREKE (*Juniperus communis*), KADULJE (*Salvia officinalis* L.) I SMILJA (*Helichrysum italicum* (Roth) G. Don)
EXTRACTION OF ESSENTIAL OIL FROM SPRUCE (Juniperus communis), SAGE (Salvia officinalis L.) AND IMMORTELLE (Helichrysum italicum (Roth) G. Don)
- 15:15 – 15:30** **Lilla Virag**, Róbert Bocsi, Dóra Rippelné Pethő
POLYLACTIC ACID-BASED GRANULE PROPERTIES FOR SOLVENT SORPTION AND RELEASE

Ekoinženjerstvo | Environmental engineering

Moderatori | *Chairs*: Zvonimir Katančić, Matija Cvetnić

- 15:30 – 15:45** **Ula Rozman**, Andreja Žgajnar Gotvajn, Tina Skalar, Marija Zupančič, Tilen Turk, Gabriela Kalčíkova
CHARACTERIZATION OF MICROPLASTIC PARTICLES USED IN MICROPLASTICS RESEARCH
- 15:45 – 16:00** **Sarah Mateša**, Marija Marguš, Irena Ciglencéki
VARIJABILNOST FIZIKALNO – KEMIJSKIH PARAMETARA U KEMOKLINI ROGOZNIČKOGA JEZERA
VARIABILITY OF PHYSICO-CHEMICAL PARAMETERS IN THE CHEMOCLINE OF ROGOZNICA LAKE
- 16:00 – 16:15** **Tamara Minović Arsić**
SYNTHESIS AND CHARACTERIZATION OF CARBON CRYOGEL AND CARBON CRYOGEL/CERIA COMPOSITE FOR ARSENIC(III) ADSORPTION FROM WATER SOLUTIONS

Primijenjena kemija | Applied chemistry

Moderatori | *Chairs*: Zvonimir Katančić, Matija Cvetnić

- 16:15 – 16:30** **Bahar Karadeniz**, Krunoslav Užarević, Dijana Žilić, Senada Muratović
MECHANOCHEMICAL SYNTHESIS OF POLYMORPHIC METAL-ORGANIC FRAMEWORKS AND THEIR TOPOLOGY TRANSFORMATION

16:30 – 16:45 Sara Krivačić, Luka Pavić, Andrea Moguš-Milanković, Ana Šantić
NISKA POKRETLJIVOST KALIJEVIH IONA U ŽELJEZNO FOSFATNIM STAKLIMA
LOW MOBILITY OF POTASSIUM IONS IN IRON PHOSPHATE GLASSES

16:45 – 17:45 **POSTERSKA PRIOPĆENJA | POSTER PRESENTATIONS**

Predavaonica i hodnik – prvi kat, prema rasporedu |
Lecture room and hallway – first floor, according to timetable

PLENARNO IZLAGANJE | PLENARY LECTURE

Moderatori | *Chairs:* Igor Dejanović, Krunoslav Žižek

09:00 – 10:00 **Žarko Olujić**
 SMANJIVANJE POTREBNE ENERGIJE I EMISIJA UGLJIKOVA DIOKSIDA U
 PROCESNIM INDUSTRIJAMA KROZ UNAPREĐENJE DESTILACIJSKE TEHNOLOGIJE
*REDUCING PROCESS INDUSTRY ENERGY DEMAND & CARBON DIOXIDE
 EMISSIONS THROUGH DISTILLATION TECHNOLOGY ADVANCES*

POZVANA IZLAGANJA | INVITED LECTURES

Moderatori | *Chairs:* Igor Dejanović, Krunoslav Žižek

10:00 – 10:30 **Franjo Jović**
 RIZICI I OPASNOSTI PRI PROVOĐENJU KEMIJSKIH REAKCIJA – PRIČA O
 SIGURNOSTI PROCESA
CHEMICAL REACTION HAZARDS – STORY ABOUT PROCESS SAFETY

10:30 – 11:00 **STANKA ZA KAVU | COFFEE BREAK**

Moderatori | *Chairs:* Krunoslav Žižek, Marina Duplančić

11:00 – 11:30 **Jelena Macan**
 KERAMIČKI MATERIJALI IZ OTOPINE – PREDNOSTI I IZAZOVI
CERAMICS FROM AQUEOUS SOLUTIONS – ADVANTAGES AND CHALLENGES

11:30 – 12:00 **Irena Škorić**
 DIZAJN, SINTEZA I INHIBICIJA KOLINESTERAZA NOVIH
 OKSIMSKIH I AMINO-DERIVATA
*DESIGN, SYNTHESIS AND CHOLINESTERASE INHIBITORY PROPERTIES OF
 NEW AMINE AND OXIME DERIVATIVES*

USMENA IZLAGANJA | ORAL PRESENTATIONS

Moderatori | *Chairs:* Petar Kassal, Matija Cvetnić

Razvoj materijala i proizvoda | Materials and products development

12:00 – 12:15 **David Bjelanović, Andrea Nesterović, Jelena Vukmirović, Ivan Stijepović, Marija Milanović, Vladimir Srdić**
 Bi_{0.5}Na_{0.5}TiO₃ PIEZOELEKTRIČNA KERAMIKA ZA UPOTREBU U PRIKUPLJANJU
 ENERGIJE DOBIJENA SINTEZOM U ČVRSTOJ FAZI
*Bi_{0.5}Na_{0.5}TiO₃ PIEZOELECTRIC CERAMICS FOR ENERGY-HARVESTING
 APPLICATIONS PREPARED BY SOLID STATE SYNTHESIS*

12:15 – 12:30 **Lea Čolakić, Mateja Pisačić, Marijana Đaković**
 MEHANIČKI ODZIV KRISTALA KADMIJEVIH(II) HALOGENIDA S OKSIMSKIM
 DERIVATIMA PIRIDINA
*MECHANICALLY RESPONSIVE CRYSTALS OF CADMIUM(II) HALIDES WITH OXIME
 DERIVATIVES OF PYRIDINE*

12:30 – 13:30 **POSTERSKA PRIOPĆENJA | POSTER PRESENTATIONS**

Predavaonica i hodnik – prvi kat, prema rasporedu |
 Lecture room and hallway – first floor, according to timetable

13:30 – 14:00 **STANKA ZA KAVU | COFFEE BREAK**

USMENA IZLAGANJA | ORAL PRESENTATIONS

Moderatori | *Chairs*: Josipa Papac, Zvonimir Katančić

Razvoj materijala i proizvoda | Materials and products development

- 14:00 – 14:15** **Strahinja Janković**, Sara Joksović, Andrea Nesterović, Ivan Stijepović, Marija Milanović, Vladimir V. Srdić
PREPARATION OF NANOCRYSTALLINE $Bi_{0.5}Na_{0.5}TiO_3$ THIN FILMS FOR MICROELECTRONIC APPLICATIONS
- 14:15 – 14:30** **Sara Joksović**, Strahinja Janković, Ivan Stijepović, Jelena Vukmirović, Vladimir V. Srdić
THICKNESS CONTROL OF $LaMnO_3$ THIN FILMS PREPARED BY CSD/PAD TECHNIQUE
- 14:30 – 14:45** **Aleksa Kočišev**, Mirjana Jovičić, Marija Milanović
THE INFLUENCE OF ZEOLITE ON THE PROPERTIES OF RUBBER COMPOSITES BASED ON THE NATURAL RUBBER
- 14:45 – 15:00** **Lucija Mandić**, Anja Sadžak, Suzana Šegota
FUNCTIONALIZED MAGNETITE NANOPARTICLES FOR DRUG DELIVERY: SYNTHESIS AND CHARACTERIZATION METHODS
- 15:00 – 15:15** **Sanja Renka**, Luka Pavić, Petr Kalenda, Petr Mošner, Ladislav Koudelka, Ana Šantić
POLARONSKA VODLJIVOST U $WO_3-P_2O_5$ I $MoO_3-P_2O_5$ STAKLIMA
POLARONIC CONDUCTIVITY IN $WO_3-P_2O_5$ I $MoO_3-P_2O_5$ GLASSES

15:15 – 15:30 STANKA ZA KAVU | COFFEE BREAK

Primijenjena kemija | Applied chemistry

Moderatori | *Chairs*: Krunoslav Žižek, Marina Duplančić

- 15:30 – 15:45** **Tomislav Gojšić**, Saša Opačak, Berislav Perić, Srećko Kirin
UNEXPECTED REACTIVITY OF PROPIOLIC ACID AND TRIAZOLES
- 15:45 – 16:00** **Dunja Ljubičić**, Snežana Vučetić
IN-SITU EXAMINATION OF HISTORICAL PAINTINGS
- 16:00 – 16:15** **Mislav Matić**, Ema Horak, Ivana Murković Steinberg
FLUORESCENCIJSKI OPTIČKI SENZOR ZA DETEKCIJU Hg^{2+} IONA NA BAZI DERIVATA BENZIMIDAZOLA
FLUORESCENCE OPTICAL SENSOR FOR Hg^{2+} ION DETECTION BASED ON BENZIMIDAZOLE DERIVATIVE
- 16:15 – 16:30** Anja Bošnjaković, **Ankica Sekovanić**, Jasna Jurasović, Tatjana Orct, Antonija Sulimanec Grgec, Martina Piasek
ODREĐIVANJE ELEMENATA U KOSI: ODABIR ODGOVARAJUĆE PROCEDURE PRANJA UZORKA
ELEMENT DETERMINATION IN HAIR: SELECTION OF THE SUITABLE SAMPLE WASHING PROCEDURE
- 16:30 – 16:45** **Mateja Toma**, Valerije Vrček
REDOKS SVOJSTVA FEROCENOM SUPSTITUIRANIH NUKLEOBAZA
REDOX PROPERTIES OF FERROCENE-SUBSTITUTED NUCLEOBASES

16:45 – 17:00 **Darko Vušak**, Biserka Prugovečki, Dubravka Matković-Čalogović
OTAPALOM KONTROLIRANA SINTEZA HIDRATA KOMPLEKSNIH SPOJEVA BAKRA S
GLICINOM I 2,2'-BIPIRIDINOM
*SOLVENT CONTROLLED SYNTHESIS OF HYDRATES OF COPPER COMPLEX
COMPOUNDS WITH GLYCINE AND 2,2'-BIPYDINE*

DODJELA NAGRADA I ZATVARANJE SKUPA | AWARDS AND CLOSING CEREMONY

Dvorana | *Venue:* Velika dvorana | *Hall A*

DOMJENAK | Banquet

Klub nastavnika – podrum | *The Faculty Club – basement*

POSTERSKA IZLAGANJA

POSTER PRESENTATIONS

Analiza, sinteza i vođenje procesa | *Process analysis, synthesis and design*

- 1 Srećko Herceg, Željka Ujević Andrijić, Nenad Bolf
METODA POTPORNIH VEKTORA KAO SOFTVERSKI SENZORI NA PROCESU IZOMERIZACIJE
SUPPORT VECTOR MACHINE-BASED SOFT SENSORS IN THE ISOMERIZATION PROCESS
- 2 Zvonimir Jukić, Ante Čović-Stanić
MODELIRANJE I OPTIMIRANJE PROCESA PROIZVODNJE TEKUĆIH ORGANSKIH GNOJIVA NA BILJNOJ BAZI
MODELING AND OPTIMIZATION OF THE PRODUCTION PROCESS OF A PLANT BASIS LIQUID ORGANIC FERTILIZERS
- 3 Goran Lukač, Ulrich Preißinger, Thomas Grützner, Igor Dejanović
SIMULATING COMPLEX DISTILLATION SEQUENCES USING COMMERCIAL SIMULATORS
- 4 Nikola Rimac, Željka Ujević Andrijić
PREGLED METODA I RAZVOJ MODELA U PROGRAMSKOM JEZIKU PYTHON ZA PREPOZNAVANJE I PREDVIĐANJE NASTAJANJA NASLAGA U INDUSTRIJSKIM IZMJENJIVAČIMA TOPLINE
A REVIEW OF METHODS AND MODEL DEVELOPMENT IN PYTHON PROGRAMMING LANGUAGE FOR FOULING DETECTION AND PREDICTION IN INDUSTRIAL HEAT EXCHANGERS
- 5 Veronika Žlabravec, Valentina Šimatović, Hrvoje Dorić, Nenad Bolf
KALIBRACIJSKI MODEL ZA KONTINUIRANO PRAĆENJE RASPODJELE VELIČINE ČESTICA
CALIBRATION MODEL FOR CONTINUOUS PARTICLE SIZE DISTRIBUTION MONITORING

Biokemijsko inženjerstvo | *Biochemical engineering*

- 6 Zoran Bila, Martin Češi, Marko Čombor, Ivana Čulo, Filip Grgić, Davor Valinger, Maja Benković, Tamara Jurina, Ana Jurinjak Tušek, Jasenka Gajdoš Kljusurić
USPOREDBA EMULZIFIKACIJE U ŠARŽNOM REAKTORU I MIKROREAKTORU – DVOFAZNI SUSTAV ULJE-VODA
COMPARISON OF BATCH AND MICROREACTOR EMULSIFICATION PROCESS – TWO PHASE SYSTEM OIL - WATER
- 7 Ivona Čupić, Ana Novak, Iva Čukelj, Manuela Panić, Martina Andlar, Ivana Radojčić Redovniković, Marina Cvjetko Bubalo
PRIMJENA EUTEKTIČKIH OTAPALA U VALORIZACIJI OTPADA NARANČINE KORE
APPLICATION OF DEEP EUTECTIC SOLVENTS IN VALORISATION OF ORANGE PEEL WASTE
- 8 Amila Dubravac, Meldina Omerčević, Mirnesa Zohorović, Emir Horozić, Husejin Keran
THE INFLUENCE OF CONTACT TIME IN REMOVING Cr(IV) IONS FROM WATER USING LEMON PEEL AS LOW-COST ADSORBENT
- 9 Čila Holpert, Anja Saveljić
USPOREDBA RAZINE UREOLIZE IZMEĐU BAKTERIJSKIH SOJEVA IZOLIRANIH IZ ALKALNIH PODRUČJA
COMPARISON OF UREOLYSIS RATES BETWEEN BACTERIAL STRAINS ISOLATED FROM ALKALINE SOILS

- 10 **Anja Karatović, Sandra Remenar, Brigita Herout, Tamara Jurina, Davor Valinger, Maja Benković, Jasenka Gajdoš Kjusurić, Ana Jurinjak Tušek**
ANALIZA GLOBALNE OSJETLJOSTI KINETIČKIH PARAMETERA MODEL METABOLIZMA TRIPTOFANA
GLOBAL SENSITIVITY ANALYSIS OF TRYPTOPHAN METABOLISM MODEL KINETIC PARAMETERS
- 11 **Barbara Kolić, Dino Skendrović, Ana Vrsalović Presečki**
OPTIMIRANJE UVJETA IMOBILIZACIJE ALDOLAZE NA MEZOPOROZNU SILIKU
OPTIMISATION OF ALDOLASE IMMOBILIZATION ON MESOPOROUS SILICA
- 12 **Petra Marin, Nevena Milčić, Irena Dokli, Martina Sudar, Zvezdana Findrik Blažević, Maja Majerić Elenkov**
BIOKATALITIČKA AZIDOLIZA FLUORO-SUPSTITUIRANIH DERIVATA STIREN-OKSIDA
BIOCATALYTIC AZIDOLYSIS OF FLUORO-SUBSTITUTED STIREN-OXIDE DERIVATIVES
- 13 **Lela Martinaga, Katarina Komljenović, Ana Vrsalović Presečki, Iva Rezić**
KINETIKA I MEHANIZAM ENZIMATSKE SINTEZE NANOČESTICA ZLATA
KINETICS AND MECHANISM OF THE ENZYMATIC SYNTHESIS OF THE GOLD NANOPARTICLES
- 14 **Petra Pohanić, Lela Martinaga, Ana Vrsalović Presečki, Iva Rezić**
MODELIRANJE ENZIMATSKE SINTEZE NANOČESTICA SREBRA
MODELLING OF THE ENZYMATIC SYNTHESIS OF SILVER NANOPARTICLES
- 15 **Mia Radović, Manuela Panić, Ana Jurinjak Tušek, Marina Cvjetko Bubalo, Ivana Radojčić Redovniković**
STABILITY OF LIPASE IN NATURAL DEEP EUTECTIC SOLVENTS
- 16 **Dino Skendrović, Tomislav Rimac, Ana Vrsalović Presečki**
USPOREDBA UTJECAJA AKTIVACIJSKIH AGENSA NA EFIKASNOST I STABILNOST ALDOLAZE IMOBILIZIRANE NA MAGNETSKE NANOČESTICE
A COMPARISON OF ACTIVATING AGENTS FOR EFFICIENCY AND STABILITY OF ALDOLASE IMMOBILIZED ON MAGNETIC NANOPARTICLES
- 17 **Manuela Sovilj, Isidora Otašević**
BIOACTIVITY AND BIOAVAILABILITY OF RED PEPPER WASTE ENCAPSULATED BIOACTIVE COMPOUNDS AFTER IN VITRO GASTROINTESTINAL DIGESTION

Ekoinženjerstvo | Environmental engineering

- 18 **Danilo Bertagna Silva, Sandra Babić, Gianluigi Buttiglieri**
PHOTOREACTOR DESIGN FOR UV-LED PHOTOCATALYTIC DEGRADATION OF MICROPOLLUTANTS
- 19 **Barbara Bertović, Marija Vuković Domanovac**
BIOREMEDIJACIJA: ZELENI PRISTUP U OBRADI NAFTOM ONEČIŠĆENOG TLA
BIOREMEDIATION: A GREEN APPROACH FOR TREATMENT OF OIL CONTAMINATED SOIL
- 20 **Kristina Bule, Martina Miloloža, Dajana Kučić Grgić, Matija Cvetnić, Vesna Očelić Bulatović**
ODREĐIVANJE TOKSIČNOSTI MIKROPLASTIKE S MIKROALGOM *Chlorella* sp.
DETERMINATION OF MICROPLASTICS TOXICITY WITH MICROALGAE Chlorella sp.
- 21 **Francis M. dela Rosa, Josipa Papac, Antonija Tomić, Marin Kovačić, Marijana Kraljić Roković, Hrvoje Kušić, Urška Lavrenčić Štangar, Ana Lončarić Božić**
FACILE PREPARATION OF $\text{TiO}_2/\text{Fe}_2\text{O}_3$ LAYERED COMPOSITE FILMS FOR SOLAR-DRIVEN PHOTOCATALYTIC DEGRADATION OF PHARMACEUTICALS



- 22 **Dorian Delić, Hana Duhaček, Stella Hamilton, Matija Cvetnić, Dajana Kučić Grgić, Viktorija Prevarić, Marija Sigurnjak, Šime Ukić, Marinko Markić, Tomislav Bolanča**
UKLANJANJE MIKROPLASTIKE NAPREDNIM OKSIDACIJSKIM PROCESIMA
MICROPLASTICS REMOVAL BY ADVANCED OXIDATION PROCESSES
- 23 **Valentina Gluščić, Martina Šilović Hujić, Ivan Bešlić, Silvije Davila, Gordana Pehnec**
RAZINE VODIKOVOG SULFIDA, AMONIJAKA I MERKAPTANA U ZRAKU NA PODRUČJU CUPOVZ-a
LEVELS OF HYDROGEN SULPHIDE, AMMONIA AND MERCAPTANS IN THE AIR OF CUPOVZ AREA
- 24 **Emir Hodžić, Elma Alić, Emir Horozić**
MONITORING EMISIJA POLUTANATA NA PODRUČJU GRADA TUZLE
MONITORING OF POLLUTANTS EMISSIONS IN THE TUZLA CITY
- 25 **Sanja Ivanušić, Marin Ganjto, Monika Šabić Runjavec, Marija Vuković Domanovac**
SASTAV MIKROBNE ZAJEDNICE U POSTROJENJU ZA PROČIŠĆAVANJE KOMUNALNE OTPADNE VODA
COMPOSITION OF MICROBIAL COMMUNITIES IN MUNICIPAL WASTEWATER TREATMENT PLANT
- 26 **Ivana Jakovljević, Zdravka Sever Štrukil, Gordana Pehnec, Ivan Bešlić, Andrea Milinković, Saranda Bakija Alempijević, Sanja Frka**
USPOREDBA MASENIH KONCENTRACIJA PAH U PRIOBALNOM PODRUČJU SREDNJEG JADRANA I SREDIŠNJOJ HRVATSKOJ
COMPARISON OF MASS CONCENTRATIONS OF PAHs IN COASTAL AREA OF THE MIDDLE ADRIATIC AND MIDDLE CROATIA
- 27 **Klara Karadakić, Iva Ćurić, Davor Dolar**
UKLANJANJE BOJE IZ TEKSTILNE OTPADNE VODE ULTRAFILTRACIJSKIM MEMBRANAMA
COLOUR REMOVAL FROM TEXTILE WASTEWATER BY ULTRAFILTRATION MEMBRANES
- 28 **Peter Kočman, Simon Schnabl**
THE IMPACT OF CLIMATE CHANGE ON FOREST FIRE RISK
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