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XIV Meeting of Young Chemical Engineers

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Faculty of Chemical Engineering and Technology Zagreb

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BOOK OF ABSTRACTS

Knjiga sažetaka

Zagreb, Croatia, 24th and 25th February 2022

HRVATSKO DRUŠTVO KEMIJSKIH INŽENJERA I TEHNOLOGA

SVEUČILIŠTE U ZAGREBU
FAKULTET KEMIJSKOG INŽENJERSTVA I TEHNOLOGIJE

XIV. SUSRET MLADIH KEMIJSKIH INŽENJERA

KNJIGA SAŽETAKA

XIV MEETING OF YOUNG CHEMICAL ENGINEERS

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UVODNIK

Susret mladih kemijskih inženjera (SMLKI) je dugogodišnji projekt djelatnika Fakulteta kemijskog inženjerstva i tehnologije koji tradicionalno promiču kemijsko-inženjersku disciplinu i ističu važnost kontinuiranog razvoja kemijskog inženjerstva i kemije u Republici Hrvatskoj. Susret se tradicionalno održava svake dvije godine od 1996. u organizaciji Hrvatskog društva kemijskih inženjera i tehnologa i Fakulteta kemijskog inženjerstva i tehnologije Sveučilišta u Zagrebu, a ove godine po prvi puta postaje međunarodni skup. XIV. susret mladih kemijskih inženjera održava se 24. i 25. veljače 2022. godine na Fakultetu kemijskog inženjerstva i tehnologije u Zagrebu.

Ovaj znanstveno-stručni skup okuplja mlade znanstvenike koji će kroz sedam sekcija razmijeniti svoja iskustva i znanja stečena radom u industriji, na sveučilištima, institutima i drugim ustanovama te prezentirati rezultate svojih istraživanja u području kemijskog inženjerstva i kemije. Cilj susreta je afirmirati mlade stručnjake i struku predstavljanjem rezultata postignutih tijekom studija, izrade završnih, diplomskih i znanstveno-stručnih radova. Mladi znanstvenici razmijenit će nova dostignuća u području kemijskog inženjerstva i kemije, novim tehnikama i tehnologijama. Susret nastoji skrenuti pozornost na nužnost interdisciplinarnosti istraživanja, razvoja i provedbe proizvodnih procesa te ponuditi mogućnost otvorenog dijaloga između akademije i privrede.

Na ovogodišnji Susret prijavilo se 264 sudionika sa 193 rada. Tijekom dva radna dana održat će se 2 plenarna, 6 pozvanih, 23 sekcijska predavanja uz 162 posterska priopćenja i 6 izlaganja sponzora. Ove godine nagrađuju se najbolja posterska priopćenja i najbolje izlaganje u kategoriji sekcijskih predavanja, a cjeloviti radovi sa Susreta objavit će se u posebnom izdanju časopisa Kemija u industriji. Radovi će prije objavljivanja proći standardni postupak recenzije. Rok za slanje radova je 8. svibnja 2022.

Hvala svima koji su doprinijeli organizaciji XIV. susreta mladih kemijskih inženjera. Svim sudionicima želim uspješan rad i ugodno druženje!

Predsjednik Znanstveno-organizacijskog odbora
Izv. prof. dr. sc. Krunoslav Žižek

FOREWORD

The Meeting of Young Chemical Engineers (SMLKI) is a long-standing project of employees of the Faculty of Chemical Engineering and Technology, who traditionally promote the discipline of chemical engineering and demonstrate the importance for its continuous development in the Republic of Croatia. Organized by the Croatian Society of Chemical Engineers and the Faculty of Chemical Engineering and Technology, the Meeting has traditionally been held biennially since 1996 and this year, for the first time, it will be an international meeting. XIV Meeting of Young Chemical Engineers is held on February 24-25, 2022 at the Faculty of Chemical Engineering and Technology in Zagreb.

This scientific and professional meeting will gather young scientists who will share their experience and knowledge from industry, universities, research institutes and other institutions in its seven sections and present their research results in the field of chemical engineering and chemistry. The aim of the Meeting is to strengthen the young experts and our profession by presenting the results of their bachelor's and master's theses obtained during their studies. In addition, young scientists will share their valuable experiences and achievements in the field of chemical engineering and chemistry using new techniques and technologies. The Meeting seeks to focus on the essence of interdisciplinary research, development and enforcement of production processes and provide an opportunity for open dialog between science and industry.

This year's Meeting will gather 264 participants with 193 presentations. Two working days will feature 2 plenary lectures, 6 invited lectures, 23 section lectures with 162 poster presentations and 6 sponsor presentations. This year, prizes will be awarded for best poster presentations and the best oral presentation, while full papers from the Meeting will be considered for publication in the special issue of the journal Chemistry in Industry. Prior to publication, papers will undergo a standard peer review process. The deadline for submission of full manuscripts is May 8, 2022.

Many thanks to all who contributed to the organization of the XIV Meeting of Young Chemical Engineers. I wish all participants a successful and enjoyable conference!

Chair of the Scientific and Organizing Committee
Assoc. Prof. Krunoslav Žižek

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POSTERSKA IZLAGANJA
POSTER PRESENTATIONS

Primijenjena kemija
Applied chemistry

CHARACTERIZATION OF ROMAN MORTARS FROM TWO ARCHEOLOGICAL SITES: TRAJAN'S BRIDGE AND ROMAN CASTRUM DIANA, KARATAS

Anđela Šiniković[1], Anja Avramović[1], Mihajlo Valuh[1], Emilija Nikolić[2], Snežana Vučetić[1]

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Historical mortars are composite materials made of binders and aggregates that were used in the construction of water tanks, Roman baths, mosaics, aqueducts, frescoes, etc. Due to the specific composition, Roman mortars are characterized by excellent strength and durability, as evidenced by numerous Roman buildings that have been preserved to this day. During the restoration and conservation of cultural heritage buildings, it is necessary to use compatible materials with appropriate physical, chemical, mechanical and aesthetic properties, which could be used for conservation of the original historical materials without compromising the durability and specificity of the analyzed building [1-3]. The aim of our work was the examination of the composition, properties, and production technology of Roman mortars from two archeological sites in Serbia (Trajan's Bridge and Karatas, Diana). Trajan's Bridge was constructed between 103 and 105 AD by the order of Roman emperor Trajan. Diana was an auxiliary fort located near Danube cataracts 8 km upstream from present-day Kladovo [4,5]. The used methods were: optical microscopy, drilling resistance measurements, XRD, TG, TG-MS, water absorption, mercury porosimetry, SEM-EDS, chemical separation of binders and aggregates, and FTIR analysis. The gained results revealed interesting facts about how advanced the Romans were in the production technology of mortars, which has been stable from the 2nd century until now.

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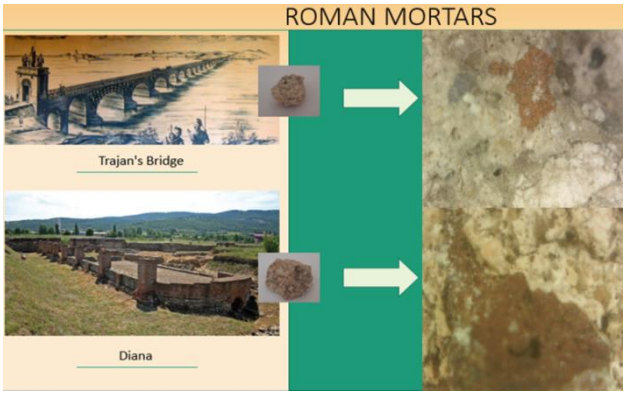

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