Preface

100 years of teaching chemical engineering in Zagreb

October 20th is celebrated every year as the day of the Faculty of Chemical Engineering and Technology of the University of Zagreb (the Faculty). On that very day, in 1919, Prof. Vladimir Njegovan gave his first lecture on Inorganic and Analytical Chemistry. The lecture was held in the building located at Marulićev trg 20 in Zagreb, in the very same lecture room where current students of the Faculty attend Analytical Chemistry classes. It is therefore obvious that this year we are celebrating 100 years of teaching chemical engineering in Zagreb, which makes our institution the oldest one in that field in this part of Europe. The organizational forms of teaching chemical engineering in Zagreb have changed over the years. From 1919 to 1926, the course was organized within the Technical High School in Zagreb. In 1926, the whole Technical High School became part of the University of Zagreb as its Technical Faculty. Over the decades, many technical faculties evolved into separate institutions. Finally, the independent Faculty of Chemical Engineering and Technology of the University of Zagreb was formed in 1991, and it still operates under that name. In its rich history, we are proud of the fact that, Prof. Vladimir Prelog, who later won the Nobel Prize in Chemistry in 1975, taught Organic Chemistry at our Faculty from 1935 to 1941. We believe it is worth mentioning that Prof. Vjera Marjanović-Krajovan was the first woman to receive her PhD title (in 1928) in the field of technical sciences from the University in Zagreb, and Prof. Helena Jasna Mencer was the first and so far the only woman to be elected (in 2002) as Rector of the very same University. During the first hundred years, more than 760 PhD theses were defended at the Faculty, and about 6500 students graduated from the Faculty, thus forming the basis of the development of the chemical industry in Croatia and the region, and many have made fine careers all over the world.

Today, the Faculty of Chemical Engineering and Technology of the University of Zagreb educates experts in the field of chemical engineering, applied chemistry, material science and engineering, and environmental engineering, and produces about 120 new bachelor's and master's degrees as well as 10–20 new PhD degrees annually. A considerable part of the activities of the Faculty is related to research, so its staff publishes about 100 scientific articles a year in international journals. Faculty members also serve on the editorial boards of many international journals. The editors-in-chief of the two most important Croatian journals in the field of Chemical Engineering and Applied Chemistry, published by the Croatian Society of Chemical Engineers, are also members of the Faculty. Since May 2014, one of those journals, i.e. Chemical and Biochemical Engineering Quarterly, has been the official journal of the Faculty.

Because of the above-mentioned fact, the Faculty wanted to mark its 100th anniversary, among other things, with a special issue of this journal. The issue includes 11 contributions authored by current or former faculty members. The issue is opened by a short review of Prof. Stanislav Kurajica on the application of chelating agents in sol-gel synthesis. It is interesting to note here that Stanislav Kurajica is the co-author of the most cited paper in this journal (*Ukrainczyk, N., Kurajica, S., Šipušić, J.*, Thermophysical comparison of five commercial paraffin waxes as latent heat storage materials, Chem. Biochem. Eng. Q. 24 (2010) 2158), which collected 95 citations in the Web of Science database since its publication. This contribution is followed by a paper of our dear guest, Žarko Olujić, a former professor of our Faculty, who later worked as a professor at the Technical University of Delft in the Netherlands until his recent retirement. He reported about predicting the pressure drop of some structured packings used in vacuum distillation.

The list of papers is continued with a group of seven papers covering a wide area of material science and engineering that is addressed by multiple research groups from our Faculty, sometimes in collaboration with other institutions. Anamarija Rogina and her coworkers investigate hydrogels based on gelatin and hydroxyapatite to be used as injection

materials for bone implants. Sanja Lučić Blagojević *et al.* reports on her studies on carbon nanotubes as fillers for polyamide polymers, and Vesna Ocelić Bulatović *et al.* on her investigations of biodegradable starch-based polymer blends used in formulation of packaging materials. Ante Jukić and his colleagues are also involved in polymers and they report on the properties of polymer blends based on poly(L-lactide) and poly(methyl methacrylate). Irena Ivanišević *et al.* investigate electrically conductive inks based on silver nanoparticles to be used for printing onto flexible substrates with the ultimate goal of application in the field of sensors. Matea Raić *et al.* report on the reduction of graphene oxide by environmentally friendly chemicals derived from waste streams of olive oil production; the reduction increased the electrical conductivity of graphene oxide and changed its capacitive properties. Ekatarina Kristan Mioč and Helena Otmačić Ćurković investigate octadecylphosphonic acid monolayers as protective coatings on various metallic materials in order to reduce corrosion rates under flow conditions.

The issue is concluded by two contributions in the field of environmental engineering. Maja Zebić Avdičević *et al.* reports on the treatment of textile industry wastewater with ceramic and polymeric membranes, and Davor Dolar *et al.* reports on the treatment of municipal wastewater by membrane bioreactor, reverse osmosis and nanofiltration with an aim to use purified water for irrigation purposes.

The Faculty of Chemical Engineering and Technology of the University of Zagreb is not a large institution, but it has relatively large scientific output in comparisons at a national level. Eleven publications found in this issue provide insight into only a part of the research activities at the Faculty, because many potential contributors have not responded for objective reasons. There is no contribution, *e.g.,* in the fields of equilibrium separation processes, biochemical reaction engineering or advanced oxidation processes for water treatment, where strong research groups exist at the Faculty. In addition, a large number of teachers work in the field of chemistry, especially in applied analytical or synthetic organic chemistry, whose papers are simply out of the journal's scope. We hope, however, that readers will get an impression of our Faculty and, in doing so, recognize the traces of our century-old tradition, perhaps in some small detail of the published texts.

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