APRIL, 2022
NEWSLETTER

MATERIALS RESEARCH SOCIETY OF SERBIA

Prof. Dr. Yury Gogotsi

"YUCOMAT found its unique niche that made it different from other conferences"

As YUCOMAT friend for many years, and someone who responds to the invitation to participate in our conferences with pleasure, because of his impressive career, we asked Prof. Dr. Yury Gogotsi, Distinguished University Professor of Materials Science and Engineering at Drexel University, to tell us his impressions about YUCOMAT conferences, his late research, the future of exploration of MXenes.

As the Chair of the International Advisory Committee of YUCOMAT, how do you see the future of further development of the YUCOMAT Conference?

The YUCOMAT conference has been for a long time an event where researchers from Eastern European countries had an opportunity to meet researchers from Western Europe and listen to prominent invited speakers coming from the US and other parts of the world. It found its unique niche that made it different from other conferences. Prof. Dragan Uskokovic put an enormous amount of his time and effort to make YUCOMAT a successful and well-respected scientific meeting. With majority of attendees staying in the same hotel, the conference is great for communication and community building, like Gordon conferences, where participants meet not just in the meeting rooms, but also during meals and outdoor activities. This environment is conducive to having project meeting with international partners in conjunction with the conference and to establishing new collaboration. The beach resort town location in Montenegro, near Dubrovnik, Kotor and other famous tourist attractions, makes the event attractive for speakers from all over the world, who frequently bring their spouses or even entire families for vacation and stay for the whole week at the meeting. I believe the conference should keep its unique position and bring together scientists from different part of Europe and the world. It's particularly important in the time when Russian aggression against its democratic neighbor, Ukraine, is challenging peace in Europe and scientific cooperation between researchers.

As a scientist with such a rich and impressive career, what does the YUCOMAT conference represent to you?

To me personally, the YUCOMAT conference is an opprtunity to meet old friends and collaborators, as well as establish new connections. I like to talk about research to young scientists from Balkan and Estern European countries, trying to inspire them to work on new materials and cutting-edge scientific problems.

Year after year, YUCOMAT deserves the increasing attention of young participants. To what extent can YUCOMAT be a starting point for building a serious scientific career for all young people who have decided on this path?

YUCOMAT 2021

The conference offers a great opportunity for young scientists to listen to invited talks delivered by world-class researchers, including Nobel Laureates, meet those researchers in person and discuss their own research during the poster sessions. Talks of prominent scientists at YUCOMAT may provide inspiration and ideas for the future research career. These meetings may offer an opportunity to explore study or research elsewhere, outside the home country. For example, when I was a young scientist, I met my future post-doc advisors for my studies as a Humboldt Fellow in Germany - Prof. Georg Grathwohl, and a JSPS Fellow in Japan – Prof. Masahiro Yoshimura, at conferences that I attended.

Your career is connected to the MXenes family of two-dimensional metal carbides and nitrides which have great importance and wide application. You talked about their use in emergency medicine, for patients with kidney disease. Can you explain more about their application and use?

The past decade of my research career was indeed dedicated to exploration of MXenes – two-dimensional carbides and nitrides of transition metals that we discovered at Drexel university with my colleagues about 11 years ago. We have produced dozens of stoichiometric and solid-solution MXenes in our lab, characterized their structure and composition and measured their properties. In the past few years, we are dedicating increasing efforts to finding applications for MXenes. In one of those projects, we are studying whether MXenes can regenerate dialysate by removing toxins that accumulate in blood of patients with acute kidney decease. Our research has demonstrated that Ti3C2Tx MXene can selectively adsorbs urea, a uremic toxin that is otherwise very difficult to eliminate from dialysate, due to the presence of narrow slit pores between the negatively charged nanometer-thin MXene sheets. We use interface engineering to control MXene surfaces and demonstrate the potential of biocompatible titanium based MXenes to be applied in dialysis care as a sorbent for uremic toxins and to regenerate dialysate fluid. A company acquired a license for this technology, and we are now moving from basic science to product development, which may eventually lead to a small wearable kidney that will greatly improve the life quality of patients who depend on regular dialysis.

How close or far are we from the mass use of devices or objects based on this technology?

We hope to see MXenes in commercial products withing the next 4-5 years.

Through your career you got many awards, and we are sure there are going to be more. How does one scientist with so many awards feel?

Awards are not the goal, they are simply an encouragement from the professional community. They tell everyone in the field that this particular scientist has discovered something new and of importance for others. They attract attention to the recipient from people who are not very familiar with the subject but understand that a scientist who received national and international scientific awards is an accomplished one. This leads to additional invitations to speak to public, deliver plenary and keynote talks at conferences and collaborate. To me personally, the most rewarding in research is a feeling of discovery itself, seeing materials that no one has seen before, understanding mechanism of processes and chemical reactions that have not been previously understood, observing new physical or chemical phenomena. This is what drives me.

YUCOMAT 2022 is expecting your lecture. Are you preparing for Herceg Novi?

The conference this year is going to be different because of the war started by Putin. It already displaced about 10 million people in Ukraine, destroyed numerous universities and research institutions of the Ukrainian Academy of Sciences. At this time, it is not clear when the war will end and how far the fire started in Ukraine will propagate.
I cannot imagine anyone willing to meet with scientists representing the country responsible for murders of thousands of people, including innocent women and children, and colleagues – researchers in the middle of Europe. Of course, there are many scientists in Russia who protested the war, signed open letters, and resisted the totalitarian regime, but how do you distinguish them from the ones who openly or silently support Putin's dictatorship and destruction of an independent democratic country? However, the YUCOMAT weathered the breakdown of Yugoslavia and the war in Balkans, which was similarly bloody and awful, which displaced and separated many families and produced much grief. YUCOMAT took place during the pandemic and even though some speakers could not come and had to give talks online in 2021, the conference was a success. I'm staying optimistic and hope that scientists from many countries will meet in Herceg Novi again in 2022. Moreover, hope the war will end by that time and this conference will offer an opportunity to Ukrainian scientists and students working and studying in Ukraine or abroad to come and meet with their colleagues from the rest of the world. For senior scientists, this may be an opportunity to find collaborators for European grant proposals. For younger scientists, this may be a chance to identify post-doc or PhD advisors. Therefore, my preparation for the conference will include solicitation of financial support from foundations, charities or other sponsors that will cover expenses of Ukrainian scientists. They desperately need our help, as many universities and research institutions have been destroyed, many scientists have been displaced and quite a few have lost their homes and all their belongings. I truly hope that this conference will show to Ukrainian scientists that they have support of the international research community and allow them to look optimistically into their future and future of their country.

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23RD CONFERENCE YUCOMAT 2022
&
12TH WORLD ROUND TABLE CONFERENCE ON SINTERING WRTCS 2022

https://www.mrs-serbia.org.rs/

https://www.iiss-sci.org/

August 29 - September 02, 2022, Herceg Novi, Montenegro

DEADLINE FOR ONLINE ABSTRACT SUBMISSION: May 1, 2022

DEAR COLLEAGUES,

Joint event the 23rd YUCOMAT Conference and 12th World Table Conference on Sintering (XII WRTCS 2022), will be held from August 29 - September 2, 2022, in Herceg Novi, Montenegro.
For YUCOMAT 2022 we have 24 Plenary Speakers. We have managed to secure the participation of Nobel Prize winners, pleiad of the most successful and the most cited in 2021.
Also, due to the renewal of the activities of the International Institute for the Science of Sintering, we will organize XII WRTCS. There are 11 remarkable Plenary Speakers for this round.

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VENUE

Herceg Novi is a beautiful little town on Montenegrin seaside, located at the entrance to the Bay of Kotor. It is often called "The City of the sun", because this small town can boast more than 200 days a year of sunshine.
The centre of Herceg Novi is its Old Town (Stari Grad), decorated with buildings dating back to the epochs of Sahat-Kula (1667) and Kanli-Kula (1483). Fortress Spanjola (1538) and Fortress Forte Mare (1687) are only a part of the cultural heritage of this renowned town.
Pleasant ambience, in the dense Mediterranean vegetation of palm trees and oleander right next to the main promenade, on the seafront, is where the famous Hunguest Hotel Sun Resort, at which the Conference will be held, is located.

Top Materials Science Scientists

Research.com, one of the major websites for Materials Science, published the 1st edition of top scientists ranking for Materials Science research offering credible data on scientific contributions since 2014.
The ranking contains h-index, publications and citations values collected on December 6th, 2021.
The top scientists ranking is a list of leading scientists from the area of Materials Science, based on a meticulous examination of 166,880 scientists on Google Scholar and Microsoft Academic Graph. For the discipline of Materials Science, over 11,163 profiles were examined.
The h-index threshold for approving a scholar to be considered is set to 40 if most of their publications are in the field of Materials Science.

At the top of this list are the names of scientists who will give plenary lectures at YUCOMAT 2022: **Zhong Lin Wang**, **Yi Cui**, **Michael Grätzel**, **Younan Xia**, **Pulickel M. Ajayan**, **John A. Rogers**, **Yury Gogotsi**, **Seeram Ramakrishna**, **Joseph Wang**.

From **Serbia** there are three scientists on the list:
Velimir Radmilović, Dragan Uskoković, Jovan M. Nedeljković.