Preface

It was my great pleasure to welcome all of you to the 10th ICAMR-2020 here in Okinawa, Japan. The latest advances in materials science and technologies during the last decade enabled the unprecedented and remarkable transformation of the scientific and technological landscapes, and in fact, the ICAMR during the previous ten years retrospectively and indirectly reflected these advances. What is more intriguing is the fact that ICAMR, as the conference avenue, provided a quite heterogeneous platform for exchanging new ideas and presenting the latest results to the broad scientific communities.

As was recently reported by the World Economic Forum, the next industrial revolution is currently taking place. There are many emerging technological breakthroughs have been reported which are based on the functionalised advanced materials in many areas. In this regard it has to be stressed that not only advanced materials have rapidly been developed, but also their fabricating and functionalizing methods are also advanced. For example, latest improvements in the atomic layer deposition (ALD) technique enabled the development of recipes for different semiconductor oxides to be fabricated with thickness of just one fundamental layer ensuring precise control of the deposition process on the Ångstrom level. In most such cases the thickness of semiconductor oxide is less than 1.0 nm. More importantly, the emerging technological breakthroughs based on the latest advanced materials allowed to bust the growth in such fields as artificial intelligence (AI), nano-robotics, bio-inspired nanostructures and instruments, the Internet of Things, autonomous vehicles, wearable electronics, quantum computing, etc., promising to radically modify our future and the way we conceive our society.

A different yet also very promising trend could also be observed in the chemistry of advanced materials. For example, surface functionalization of various nanostructures by the different biological objects at nanoscale has added another opportunity to tailoring of their properties and enabled *"nanomaterial-on-demand"* strategy for the complex 3D nano-architectures. One of the examples of such approach is modification and tailoring of the metal organic frameworks (MOFs). All the above have brought materials science, organic and inorganic chemistry and physics much closer to each other.

Thus, ICAMR 2020 enables to uncover interdisciplinary topics including, but not limited to, fabrication techniques for new advanced materials, methods of their functionalization, various artificial and bio-inspired smart/responsive systems and devices.

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