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Advanced Bioactive Glasses and Ceramic Coatings

Guest Editor:

Dr. Monika Furko
Centre for Energy Research, 1121 Budapest, Hungary

Deadline for manuscript submissions:
closed (30 June 2024)

Message from the Guest Editor

Dear Colleagues,

We would like to invite you to contribute to present Special Issue on "Advanced Bioactive Glasses and Ceramic Coatings".

Ceramics can be used in many ways and forms in industry or in the biomedical field. The ceramics utilized in biomedical areas are called bioceramics or bioglasses. Bioceramics as well as bioglasses can be used as replacements for hard tissues in human bodies in order to repair damaged bones, owing to their unique chemical and mechanical properties. Bioactive glasses are regarded as a class of bioceramic materials. The other main advantage of bioglasses and bioceramics is that they can form a strong chemical bond at the interface when they applied as special coatings, promoting their integration into the bone tissues and stimulate cell proliferation and differentiation. To date, three main types of bioactive glasses are known: silicate-based glass (SiO_2), phosphate-based glass (P_2O_5), and borate-based glass (B_2O_3). However, there is intensive research on developing new types of bioglasses and bioceramics by doping them with other bioactive elements or minerals, thus improving their bioactivity.

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Editors-in-Chief

Prof. Dr. Wei Pan
State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science & Engineering, Tsinghua University, Beijing 100084, China

Dr. Emerson Coy
NanoBioMedical Centre, Adam Mickiewicz University in Poznań, ul. Wszechnicy Piastowskiej 3, 61-614 Poznań, Poland

Message from the Editorial Board

Now more than ever, research is asked to deliver knowledge and technologies to solve the major challenges faced by our society. The development of new materials and devices for (without the ambition to be exhaustive) energy, health and food technology, together with the need for establishing processes that reduce the impact on critical resources and the environment, is indeed in the spotlight of most contemporary research. Surface science and engineering play a key role in this regard, with an incredible potential in delivering new and deep scientific understanding and technical solutions essential to solve most of the major societal challenges.

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Contact Us

Coatings Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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mdpi.com/journal/coatings
coatings@mdpi.com
𝕏@Coatings_MDPI