

Coating Materials and Surface Treatments for Applications in Particle Accelerators

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Message from the Guest Editor

Future particle accelerators demand very high beam intensities and energies, which for circular machines have the consequence of a very strong production of synchrotron radiation, among other issues. Such radiation hitting the beam vacuum chamber can cause several unwanted effects such as heat load on accelerator walls, and photon-stimulated desorption and production of primary and secondary electrons. All these effects influence beam dynamics and may lead to uncontrolled beam instabilities, such as the electron cloud effect. Studies of the properties of material surfaces are therefore a very important topic in particle accelerators. This Special Issue of *Coatings* will cover the latest research on the coating materials used in the vacuum chambers of future particle accelerators.

In particular, the topics of interest include but are not limited to:

- Measurement of surface impedance;
- Primary and secondary electron yields;
- Reflectivity;
- Coating techniques;
- Laser ablation surface engineering (LASE).

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Guest Editor



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Special Issue

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Message from the Editorial Board

Now more than ever, research is called for to produce technologies and improve knowledge 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 at the center of most contemporary research. Surface science and engineering play a key role in this regard. Refining surfaces and their modifications provides new materials, architectures and processes with a huge potential to aid most societal challenges. *Coatings* is a well-established, peer-reviewed, online journal that focuses on the dissemination of publications in the field of surface science and engineering. *Coatings* publishes original research articles that report cutting-edge results and review papers on the hottest topics.

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