



## Advances in Hard Coatings: Production, Properties and Applications

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Deadline for manuscript  
submissions:

**closed (31 July 2021)**

### Message from the Guest Editor

Nearly 50 years have passed since the so-called 1st generation of hard coatings, correlated with the well-known Ti-based thin films, was industrially implemented in high-performance mechanical applications.

It soon became clear that the superior hardness of hard coatings came extrinsically from a combination of dissimilar features: phases, structures, and layers. Thus, modern surface architectures emerged, involving duplex, multiplex, and hybrid coatings.

These achievements resulted in significant hardness enhancement, and its scale has been redone. But increasing hardness and strength is often concomitant with loss of other properties.

The 4th generation smart or chameleon hard coatings comprises those that change their properties as required to meet the specific necessities for a given application, surpassing the traditional metallic substrates by glass, ceramics, and polymers. There are many others that are still at the development stage and will hopefully contribute to the next generation of hard coatings.

All topics on surface modification and analysis are welcomed, emphasizing the newer processes, properties, and applications of hard coatings.





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## 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.

Coatings is a well-established, peerreviewed, online journal dedicated to the vibrant field of surface science and engineering. Coatings publishes original research articles that report cutting-edge results and review papers that make the point on the hottest research topics.

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