

Editorial

Welcome to *Coatings*: a New Open Access Journal

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The journal *Coatings* is starting its activity as a peer-reviewed, open access journal. As editors, we believe that it will fulfill an important role in the community of researchers and developers in the field of coatings. There already exists several high quality journals dedicated to coatings, but none of them has “free access”, a characteristic that we believe is very important in a field which is traditionally very close to industrial activity and where researchers aim not only at academic research but toward products of an industrial and marketable value. For these researchers, it is important that they can publish their results in a journal that guarantees quality that comes from peer-review, but that at the same time breaks the traditional boundaries of academic journals which need a subscription or a pay-per-view option to access the published data.

Coatings, as a subject, encompasses a wide field that has been with us for a long time; enamels were already used in Egypt and lacquers in China thousands of years before our time. The modern field of coatings may have started with the diffusion of electrodeposition in the 19th century. Today, there exists a large number of coating technologies, a wide variety of materials that can be used as coatings and of substrates that can be coated. The field can be subdivided in large subfields which may account for different methods of preparation, for different properties of the coatings and for different applications and aims.

Traditionally, coatings are classed as “thin films” for coatings no thicker than a few micrometers, whereas “thick films” start from thicknesses of a few tens of micrometers up to several hundreds and—in some cases—in the millimeter range. A further class of coatings is that of molecular or atomic coatings, where thickness is controlled to the level of a single atomic layer. Coatings are also classified

as a function of their purpose. Here, a section is that of decorative coatings, a traditional field still very important. In terms of “functional coatings” there exists a very wide range of purposes: protective coatings, which defend the substrate from corrosion and mechanical wear, is another traditional field that has seen tremendous development in recent times. To these, we can add coatings for optical purposes, low friction, electronic properties, solar cells, and others.

In terms of methods of preparation, traditional electroplating remains a very important sector, although it is branching out in new sectors which make use of new electrochemical media (e.g., ionic liquids) or exploit the control at the level of a single atomic layer that can be obtained by underpotential deposition. Gas phase deposition has seen a tremendous development in the past decades, with chemical vapor deposition (CVD) and physical vapor deposition (PVD) developing with many varieties of methods. In parallel, plasma and flame spraying have also been developing very rapidly, offering their traditional advantage of a very fast deposition rate coupled with better control of the parameters of deposition which leads to better controlled films in terms of thickness and composition.

All in all, the ancient art of coatings remains very much alive and in full development today, especially in a period in which it is becoming vital to use parsimoniously commodities such as rare minerals. Coatings offer the possibility of minimizing this use and to save these precious commodities for future generations. Hence, we believe that the field will continue to play a vital role in modern technology for many years to come. The journal *Coatings* is designed to help the field to diffuse even more and will, therefore, have a strong focus on relevant industrial applications. Within this general aim, original research in all fields of coatings will be evaluated for publication.

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