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Advances in Thin Film Magnetism

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Message from the Guest Editor

Magnetism in thin films is a fascinating field in which the restricted size, importance of the surface, and presence of a structurally and compositionally different substrate generate a rich variety of phenomena that no longer respect the thermodynamic limits established in bulk systems. The typical physical quantities, such as exchange interaction and magnetic anisotropy, are seriously changed by the confinement between surface and interface, and frustration and interaction with foreign orbitals. The possibility to go beyond frontiers by accurately controlling the size, interface quality, and composition, which was facilitated by the technological progress of film deposition, has led to an unprecedented development of new materials with outstanding magnetic properties. Moreover, new architectures as well as new materials (i.e., magnetic topologic insulators) opened the road for magnetization manipulation through electric field or charge current (spin transfer and spin orbit torque). New technological applications promptly emerged trying to satisfy the high demand for sensitive sensors, for ultrafast, nonvolatile, and scalable memories and logic application.

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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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