



## Thin Films by Atomic Layer Deposition: Properties and Applications

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### Message from the Guest Editors

The complementary metal oxide semiconductor (CMOS) devices is continuous scaling down. Vertically stacked devices are of great importance in Flash and new nonvolatile memory applications. Rapid advances in device performance has been limited by the presence of high interface density and other nonstoichiometric defects. As a method to improve the film quality, atomic layer deposition (ALD), favored for its low-temperature self-limiting growth mechanism, has been employed especially in nanoscale devices. It can offer high uniformity, superior conformality (step coverage), and accurate thickness control. In addition, a thorough understanding of the properties of ALD-grown thin films is fundamental to designing devices using both mature and emergent ALD-grown materials.

The topics of this Special Issue include, but are not limited to:

Thin films by atomic layer deposition;  
Material characterization techniques;  
Optical/electrical characterization techniques;  
Surface passivation and coatings using ALD thin films;  
Fundamental and functional properties of surface and interfaces;  
Device fabrication, characterization and reliability using ALD thin films.





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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.

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