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Metal Oxide Thin Films for Photovoltaic Applications

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Message from the Guest Editor

Nowadays, the enhancement of a solar cell's lifetime and the cost of producing energy materials like metal oxide is very challenging. However, the versatility and functionality of metal oxide thin films have provided room for the possibility to preserve or to enhance the lifetime of such devices. Oxide semiconductors have been applied in photovoltaic technologies for many years. Their outstanding ability to preserve or improve device characteristics, even as a noncrystalline (amorphous) material, allows for their application in flexible and semitransparent photovoltaic devices and printed electronics.

The bandgap of many common oxides are wider than that of silicon (1.12 eV) . The place of metal oxide coatings in solar cell structure is an essential part of these devices. The function of these coatings can be as a buffer, barrier, n-type conductive transparent layer, p-type conductive transparent (not transparent) layer, ormain light harvesting material.

The Special Issue is focused on a range of crystalline to amorphous thin metal oxide films, nanoparticles, nanotubes, or nanostructures for photovoltaic applications.

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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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