Electrodeposition of Nanoengineered Materials and Devices 3

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In this Research Topic, we seek to bring together the latest developments in electrochemically synthesized nanoengineered materials and their applications in electrical, optical, and energy generation and storage devices. Keywords: Electrodeposition, Electroplating, Nanomaterials, Nanowires, Nanoparticles. Important Note: All contributions to this Research Topic must be within the scope of the section and journal to which they are submitted, as defined in their mission statements. Frontiers reserves the right to guide an out-of-scope manuscript to a more suitable section or journal at any stag Optically-controlled digital electrodeposition of thin-film metals for fabrication of nano-devices. Na Liu, Fanan Wei, Lianqing Liu, Hok Sum Sam Lai, Haibo Yu, Yuechao Wang, Gwo-Bin Lee, and Wen J. Li. Author Information.Â Electronic devices are made layer by layer from the bottom up using additive methods to deposit conductors and dielectrics. Conventional processes usually include three main steps: deposition, patterning, and thickening when a thicker pattern (thicker than aproximately1 Âµm) is needed, each of these steps taking place in a controlled environment. Electrodeposition of Nanoengineered Materials and Devices 4. Editors: N. V. Myung.Â Electrodeposition of Hierarchical Nanostructured Gold Coatings as Facile Route for Fabrication of Superhydrophobic Surfaces. L. Magagnin, W. Menghua, S. Torabi Tabatabaei, B. Demir, M. Sansotera, S. Talaeemashhadi, and W. Navarrini. Author Index. Electrodeposition is a well-known conventional surface modification method to improve the surface characteristics, decorative and functional, of a wide variety of materials. Now, electrodeposition is emerging as an accepted versatile technique for the preparation of nanomaterials. Work done in this direction is discussed in this chapter. Electrodeposition of Nanostructure Materials. By Souad A. M. Al-Batâ€™hi. Submitted: November 18th 2014 Reviewed: August 31st 2015 Published: December 2nd 2015.Â New materials and processes are being developed and integrated in microelectronic manufacturing to provide new functionalities, for example, in MEMS, lab-on-a-chip, or microfluidic devices. Polymers and biomaterials are electrodeposited for biomedical applications; metal oxides and compound semiconductors are grown electrochemically for electronic or optoelectronic applications.Â Thermoelectronic devices are another emerging technology that uses electrodeposited materials [37].