

Exploring Nano-Silicon for Printable Electronics

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Abstract

An overview about the activities of Degussa in the field of new electronic materials will be given. Degussa has just recently founded the Nanotronics Science to Business (S2B) Center in Marl, Germany, which started operation in April '05. In the Nanotronics S2B Center Degussa will be developing innovative solutions for electronics applications in collaboration with universities and industrial cooperation partners. A main focus of the Nanotronics S2B Center is the development of new conducting and semiconducting nanoparticles for electronic devices and the development of a suitable printing process. One approach are silicon nanocrystals, produced by a gas phase process, which can potentially be used as printable inorganic semiconductors.

Techniques to remove surface oxides and reduce defect densities at the surface will be presented. Other nanomaterials, like nanoscaled Indium Tin Oxide, for printable electronics and flexible display applications will be discussed. Degussa strongly believes in high opportunities for these materials in emerging markets like RFID tags and others. This project is co financed by the European Union.

Author Biography

Dr. Steiger is physicist by education. After his PhD he worked at Covion/Franfurt on various aspects of organic light emitting materials. Dr. Steiger joined the printable electronics group of Creavis in 2004.