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From Discovery to the World: Our Efforts in Establishing a Carbon Nanotube Industry

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Venue: 31A, 3F Faculty of Engineering Bldg. 2

Abstract:

In the nearly 30 years since the elucidation of the carbon nanotube structure, the reality of mainstream commercial applications, such as nonplanar touch panels, sealing materials, high performance power sources, etc. are now in the foreseeable future. However, for these dreams to become reality, practical developmental obstacles need to be resolved. This is precisely the work which is undertaken by the CNT-Application Research Center, AIST. However, the current state of the Center is a culmination of over 15 years work from the initial discovery of one of our core technologies, water-assisted chemical vapor deposition, development of various application seeds, and characterization technologies.



This presentation will provide an overview of our recent progress in the synthesis and application of millimeter-scale, vertically-aligned single-walled carbon nanotubes using “Super-growth” CVD. In one section of my presentation, I will describe our efforts toward the economical mass-production of single-walled carbon nanotubes (SWCNT) based on the water-assisted chemical vapor deposition technique, from which highly efficient synthesis of vertically aligned SWCNTs grow from substrates (SWCNT forests). In particular, I will share the development of the Super-Growth method from its inception to the current industrial-scale mass production plant. In addition, I will present some of our work in developing the technology for the synthetic control of SWCNTs. Finally, I will present some examples of the application development which has been developed and/or is currently on-going.

主催： 東京大学大学院工学系研究科専攻間横断型教育プログラム 機械システム・イノベーション (GMSI)
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