Sumio Iijima

Professor at Meijo University, Nagoya; Director of the Research Center for Advanced Carbon Materials at the National Institute of Advanced Industrial Science and Technology (AIST) in Tsukuba; Senior Research Fellow at NEC Central Research Laboratories

2007 Balzan Prize for Nanoscience
For his discovery of carbon nanotubes, in particular the discovery of single-wall carbon nanotubes and the study of their properties.

Institution Administering Funds: Meijo University, Nagoya

Adviser for the Balzan General Prize Committee: Nicola Cabibbo †

Carbon Nanotubes: Structural Study and Applications in Biomedicine

Sumio Iijima's Balzan Research Project was composed of two parts:

1. The first part was concerned with the characterization of atomic-level structures and physical properties of carbon nanotubes (CNTs) and their related nano-structures, by means of in situ high-resolution electron microscopy (HR-TEM). The detail of the atomic structures of individual tubes has become increasingly important for understanding their physical properties and growth behaviors where the atomic defects are believed to play an important role.

2. The second part dealt with the basic characterization of the CNTs necessary for biomedical applications, namely, drug delivery systems (DDS). CNTs have advantageous properties with respect to conventional DDS materials, such as liposomes and polymeric systems. They can be modified physically and chemically to meet optimum conditions for loading drugs in the inner spaces of CNTs and releasing them at specific sites and timing.

In the main, the program was conducted at Meijo University, Nagoya, Sumio Iijima's affiliation from 2008 to 2010. Some research was performed at the Research Center

of Nanocarbon Materials at the National Institute for Advanced Industrial Science and Technology (AIST), Tsukuba, a governmental organization which is also directed by Professor Iijima.

Researchers:
1 post-doctoral research fellowship

Link:
http://www.nec.co.jp/press/en/0711/2301.html