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Presentation Title:
Towards a world-top level fundamental Research Institute in Nanotechnology and Materials Science

Abstract:

Today, the world demands problem-solving research that focuses on numerous problems associated with the global environment, energy, and resources. Here, the development of innovative materials will be essential of the sustainable society that such research envisions is to be realized. Nanotechnology (nanotech) is an innovative technology that is advancing with increasing speed as the early 21st century moves forward. Nanotech is building new integrated scientific and technical frameworks and establishing base technologies foe new industries by tearing down boundaries that separate physics, chemistry, biology, and other existing academic fields. Even so, it cannot be said that nanotech has progressed as originally anticipated. Nanotech, as a field, must undergo a paradigm shift if it is to get back on track. We believe that the application of a new nanotech framework known as ñMaterials nanoarchitectonicsò will trigger this paradigm shift. We also believe that materials nanoarchitectonics will deliver a continuing series of new materials and devices with hitherto unimagined functions that will create innovations which will inject new life into industry.

Fig. 1 Entrance of MANA Building at Namiki-site.

The National Institute for Materials Science (NIMS) has been selected to participate in the World Premier International (WPI) Research Center Initiative of Japanôs Ministry of Education, Culture, Sports, Science and Technology (MEXT). In October 2007, NIMS has launched a new center entitled ñInternational Center for Materials Nanoarchitectonicsò (MANA). Indeed, MANA was established with the aim of becoming a visible ñworld-class research center for nanotech and nanomaterial researchò that would bring together top researchers from around the world and that leading researchers would aspire to visit as well as be a part of it. Taking advantage of the autonomous qualities of multinational researchers gathered from around the world, MANA is creating innovation and contributing to scientific and technical advancement by promoting bold, leading-edge basic research that makes full use of nanotech, and inventing and discovering new materials and devices while simultaneously elucidating the basic principles behind them.
Fig. 1 shows the Entrance of the MANA Building at Namiki-site.

References :

[1] R. W. Davidge, “Mechanical behavior of ceramics” (Cambridge Uni. Press, Oxford, 1979).
[2] A. G. Evans, asd Acta Materialia Vol. 45 (1997) 23.