

*Abstract for the Presentation at at Jawaharlal Nehru University, New Delhi, India
on December 19, 2006*

Nuclear Reaction-based Civilization in the 21st Century

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Abstract

Development of nuclear energy seems to have moved into a new era, where the future of nuclear energy is openly discussed all around the world. International cooperation such as the global nuclear energy partnership (GNEP) and the development of the forth nuclear energy system (GEN-4) is also gaining more and more momentum in many respects to sustain the sustainable development of man kind.

Nuclear energy, which is a technology that constitutes a fundamental pillar supporting human civilization, has the potential to make significant contributions to society in terms of energy, technology, materials and information. For example, the aim of the development of nuclear energy is to establish nuclear fuel cycles and thereby achieve a system that secures both energy supply and environmental protection at the same time. On the other hand, the public are now becoming aware that steady progress is being made, not only in the field of nuclear energy, but also with regard to the beneficial applications of radiation. Particularly, medical applications of radiation are increasingly familiar to the general public today. It is not unreasonable, therefore, to presume that in the future it will become more and more difficult to find any area, whether in high technology or in industries, that is completely free from the influence of radiation or nuclear energy.