

## **Gen IV in Japan**

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In Japan the genesis of Gen IV reactor studies can not be clearly defined but be considered many years ago. In 1991 in Tokyo Tech we held the International Specialists' Meeting on the Potential of Small Nuclear Reactors for Future Clean and Safe Energy Sources, in which several Gen IV reactor concepts were included, such as modular HTR (both prismatic and pebble-bed types), Integral type PWR, IFR, 4S, lead or lead-bismuth cooled FR, MSR, and others.

When Gen IV was proposed in the USA, Japan joined it aggressively. A feasibility study on commercialized fast reactor system (F/S) has been started by joint project team of JNC, JAPC, CRIEPI and JAERI, where fuel and core design studies on a combination of fuels (oxide, metal, and nitride) and coolants (sodium, lead-bismuth, helium and water) were performed. They selected oxide-fuel sodium-coolant fast reactor as the primal option, which is the Japanese original plan starting almost half a century ago, and metal-fuel sodium-coolant fast reactor as the second one.

While the study of F/S was active, many innovative reactors were studied intensively in many institutes. But after the conclusion of F/S appeared, the studies on alternative designs shrunk.

At present alternative innovative nuclear reactors are researched in only limited number of academia. In Tokyo Tech we are continuing to research on GenIV especially in the framework of COE-INES, which was supported by the Japanese Ministry of Education, Culture, Sports, Science and Technology in 2003-2008 as the only one 21st Century Center of Excellence (COE) Program in the field of nuclear engineering.