

Generation-IV Reactor Concepts

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The Generation-IV International Forum (GIF) is a multi-national research and development (R&D) collaboration. The GIF pursues the development of advanced, next generation reactor technology with goals to improve:

- a) sustainability (effective fuel utilization and minimization of waste)
- b) economics (competitiveness with respect to other energy sources)
- c) safety and reliability (e.g., no need for offsite emergency response), and
- d) proliferation resistance and physical protection

The GIF Technology Roadmap exercise selected six generic systems for further study: the Gas-cooled Fast Reactor (GFR), the Lead-cooled Fast Reactor (LFR), the Molten Salt Reactor (MSR), the Sodium-cooled Fast Reactors (SFR), the Super-Critical Water Reactor (SCWR), and the Very High Temperature Reactor (VHTR). For each system, a variety of specific design configurations and technology options could be employed.

This talk will review the system characteristics of the six Generation-IV reactor concepts. The technology options and reactor performance will be compared. In addition, the potential missions for these new reactor technologies will be explored.