

# **Transmutation Applications**

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## **Abstract**

Another recent topic of interest is transmutation where nuclear reactions are used to transmute materials into different elements or isotopes. A variety of different transmutation sources and technology options will be described. The typical goals of transmutation are to improve either waste management or resource utilization in the nuclear fuel cycle:

- The transmutation by fission of selected actinides is termed “actinide burning”
- Problematic waste isotopes can be transmuted (e.g., to shorter decay time)
- Natural uranium can be transformed into usable fuel materials

In this talk, key goals for transmutation performance will be described and the potential benefits explained. Furthermore, the performance of relevant reactor options to achieve efficient transmutation will be compared.