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## Advances in accelerator-driven advanced nuclear energy system

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Accelerator Driven Advanced Nuclear Energy System (ADANES) is to realize the transmutation of nuclear waste and the regeneration of nuclear fuel. ADANES can flexibly connect with the existing nuclear power system to achieve the goal of continuous and minimum waste discharge for the nuclear power system. A new sub-critical reactor concept is proposed as high power beam with one accelerator splitting into multiple beams to drive the sub-critical reactor, which is so called Multi-Beam Accelerator Driven System (MB-ADS). Based on the concept of MB-ADS, a fuel cycle system integrating transmutation and proliferation was developed, and efficient transmutation of minor actinide and spent fuel regeneration were realized at the same time. In this paper, the progress of the MB-ADS as well as the high reliability accelerator and Multi-Beam beam line are presented.

### Footnotes

### Paper preparation format

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