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Type: **Invited Lecture**

## INVITED LECTURE - High power superconducting proton accelerators for ADS and Gen-IV

*Tuesday 18 September 2012 17:10 (20 minutes)*

Accelerator Driven Systems (ADS) have been considered and deeply studied since mid nineties as a possible solution to transmute long lived minor actinides and fission products in order to reduce the radio-toxicity of nuclear waste repository. The ADS scheme has been one of the driving objective for the strong development since then of the design of high intensity proton accelerators with MW beam power. An accelerator design based on stringent availability and reliability requirements has been the consequence of the combination of a sub-critical reactor with a particle accelerator. While the ADS concept is not considered anymore as the principal solution for the nuclear waste problem, it is still part of the Gen-IV scenario and the high power superconducting linear accelerators are being continuously developed for spallation neutron sources, particle physics and material irradiation facilities for fusion reactor.

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**Track Classification:** Nuclear fuel cycles, present Gen III+ NPPs, Gen IV and Th based reactors