

- Participation to NRFP-05 [Support for safety research of Small Modular Reactor]

General comments

Although the EC must have in mind the development of critical SMR, proposing a subcritical, accelerator driven SMR may offer the advantage of enhanced safety (given one more way to shut down the system by shutting down the accelerator) and higher flexibility in terms of testing different types of fuel/coolant. Specifically about the latter point, a safety evaluation should be performed concerning loading the ADS/SMR with significant quantities of Minor Actinides. Basically, the idea would be to propose an ADS as a test stand to study various safety aspects of a fast SMR.

Specific topics of interest

INFN may be interested in the design of a cyclotron driver and in contributing to target/core design studies, in particular MonteCarlo simulations of power, neutronics and burnup and possibly some CFD calculations.

- Request to SCK to join the Myrrha project.

General comments

In this case, any possible contribution to the accelerator part will have to be kept within the boundary of the linac driver option. In addition, budget limitations can be expected as we are dealing with an already existing consortium with obvious implications in terms of finding a reasonable financial allocation for new partners.

Specific topics of interest

INFN may be interested in contributing to specific safety studies, e.g. MonteCarlo simulations of power distribution in fuel elements and possibly the related CFD implications, perhaps also with some insight on transients. Moreover, the potential impact of Myrrha on transmutation studies may be evaluated. However, we can only figure this out if the Myrrha consortium will share their goals and research needs.