

Current work for the design concept for a rotating solid target system for ESS

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Abstract

The solid rotating target was chosen to be the primary option for the European Spallation source to be built in Lund/Sweden. Even water is well known as a cooling medium for solid spallation targets, the feasibility of using helium should be considered as a first priority. Juelich participates in the design update phase for ESS in the field of target and target system development. For the target, the arrangement of the target material (tungsten) as well as the cooling flow pattern will be studied with the aim of operating at a moderate absolute pressure of the cooling helium of 3 bars. Major challenge to overcome will be the very high necessary volumetric flow rate.

For the target system two options will be considered. On the one hand, operating the target from a long shaft and thus keeping the drive, bearing and seal unit outside of the area of high radiation levels. On the other hand a trolley based option featuring radiation hard components. The pros and cons of both options will be discussed. This paper will report on the current progress of work.