

## **Conceptual Designs for Thermal, Cold, and Very Cold Neutron Moderator Systems for CANS**

In recent years there has been a renewed interest in the development of compact neutron sources, as an alternative to large facilities based on reactor or accelerator installations. In fact, compact accelerator-driven neutron sources (CANS) have been in operation for a long time, but different circumstances have recently prompted the design and development of new high intensity CANS projects around the world. The compact character of such installations must be also reflected in their target-moderator-reflector (TMR) systems, where the significant radiation fields they are immersed in and the requirement of optimized configuration to achieve the expected high neutron fluxes, pose new challenges for the design of the appropriate TMR in each case. In this work some conceptual ideas are presented that can be considered as initial guesses for the necessary simulation work, with particular emphasis on moderator configurations able to supply thermal, cold, and very cold neutron beams based on High-intensity CANS (HiCANS) or Medium-intensity CANS (MiCANS). To pursue this endeavor a special effort was made to collect analytical tools and experimental information in support of the proposed concepts.

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