

P. Remarks on the Conceptual Design of the D₂O Moderators at the Proposed SIN Spallation Source, W. E. Fischer, SIN

The Be sleeve as an inner part of the reflector gives a somewhat higher flux (5-10%) due to (n,2n) reactions of neutrons with higher energy and a flatter radial neutron flux distribution. The corresponding cross sections are however not well known. The influence of this sleeve will be investigated in a mockup experiment at SIN by an SIN-Julich-Karlsruhe collaboration. In the same experiment, neutron flux depressions of beam tubes will be determined.

Further moderator geometries have been investigated by Beat Sigg (ETH-Zurich).¹ From these calculations the following conclusions can be drawn:

- A smaller radius of the D₂O-tank leads to lower thermal neutron flux. Typically, a reduction of 80 cm decreases the neutron flux by 20%.
- It is possible to replace the external part of the D₂O moderator by H₂O without considerable depression of the thermal neutron flux around the Be sleeve.

References

1. Studie über eine kontinuierliche Spallations Neutronenquelle am SIN, W. E. Fischer, Ch. Tschalar (SIN); B. Sigg (IRT-ETHZ); H. Rauch (Atomina Oestess. Hockschulen Wien).

Q. Comments Relevant to the Design of TRIUMF, I. M. Thorson, TRIUMF

1. Experimental Requirements/Basis for Target/Moderator Optimization Criteria for the TRIUMF TNF

The ground rules for TRIUMF TNF design, in rough order of priority were:

- It had to have a very high availability factor as a dump for the residual beam from the main meson production line.
- It had to serve as a thermal neutron irradiation and beam facility equally.

These specifications were, at least, colored by the fact that our accelerator facility is, and has the prospect into the indefinite future of, being operated in the continuous wave mode.

2. On the Pros and Cons of Uranium as a Target Material (Point Not Enumerated During ICANS-III)

The hazard to experimenters doing elastic neutron scattering from delayed neutrons is probably not very great; the hazard to inelastic neutron scattering experiments is much greater.