Moderator Configuration Options for ESS - DTU Orbit (09/11/2017)

Moderator Configuration Options for ESS

The current, still evolving status of the design and the optimization work for the moderator configuration for the European Spallation Source is described. The moderator design has been strongly driven by the low-dimensional moderator concept recently proposed for use in spallation neutron sources or reactors. Quasi-two dimensional, disc- or tube-shaped moderators,can provide strong brightness increase (factor of 3 or more) with respect to volume para-H2moderators, which constitute the reference, state-of-the-art technology for high-intensity coupled moderators. In the design process other, more conventional, principles were also considered,such as the importance of moderator positioning, of the premoderator, and beam extraction considerations. Different design and configuration options are evaluated and compared with the reference volume moderator configuration described in the ESS Technical Design Report.

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