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Towards a High Brilliance Neutron Source

Wednesday, 17 June 2015 20:00 (1 hour)

Research with neutrons in Europe is undergoing severe changes. While several medium flux research reactors have been decommissioned, construction of the world's most powerful pulsed spallation source has started in Lund. At JCNS we are considering several alternative routes where the entire chain from particle source through particle accelerator, target, moderator, reflector, shielding, beam extraction, beam transport all the way to the detector is being optimized. We are exploring the limits of accelerator or laser driven neutron sources based on nuclear reactions in the lower MeV regime. Although fewer neutrons are being produced per incident particle, such a source is significantly cheaper than a spallation source and allows a better coupling of target-to-moderator and moderator-to-beam transport system. Of particular importance is the optimization of the moderator.

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