

Technical Meeting on Plasma Physics and Technology Aspects of the Tritium Fuel Cycle for Fusion Energy

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Tritium migration predictions and pathways in the fusion core

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Fueling, exhaust, breeding, and processing of large amounts of tritium is one of the significant technical challenges facing future deuterium-tritium fusion reactors. The propensity of tritium (as other hydrogen isotopes) to permeate through metals and other structural materials is a significant complicating factor. Successful closure of the D-T fusion fuel cycle requires that tritium losses via this mechanism remain small, and safety and environmental considerations demand that they are far smaller still. This talk will review physical phenomena relevant to the migration of tritium throughout the fusion core and beyond, their measurement and uncertainty, and predictive models and codes developed to simulate them.

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