A Fusion Development Facility on the Critical Path to Fusion Energy

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ABSTRACT

A Fusion Development Facility (FDF) based on the tokamak approach with normal conducting magnetic field coils is presented. FDF is envisioned as a facility with the dual objective of carrying forward advanced tokamak (AT) physics and enabling development of fusion's energy applications. AT physics enables the design of a compact steady-state machine of moderate gain that can provide the neutron fluence required for FDF's nuclear science development objective. A compact device offers a uniquely viable path for research and development in closing the fusion fuel cycle because of the demand to consume only a moderate quantity of the limited supply of tritium fuel before the technology is in hand for breeding tritium.

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