

Session 9: Tungsten, tungsten alloys, and advanced steels and Technology and qualification of plasma-facing components, Friday, May 23 2025, 9:00-11:15

Location: lecture room

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CFEDR and its PFMC progress

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The Chinese Fusion Engineering DEMO Reactor (CFEDR) is the next device for the Chinese magnetic confinement fusion (MCF) program which aims the early demonstration of tokamak DEMO reactor in China. CFEDR will be operated either hybrid or steady-state operation scenarios of fusion power over 1 GW. The progress of CFEDR based on CFETR is briefly introduced in this talk.

Plasma facing material and components are the key issues of CFEDR. W alloy was chosen for both first wall and divertor material. Design of CFEDR first wall together with breeding blanket and its R&D will be presented. The details of the first prototype divertor module will be given in detail, including the design of divertor, material development, manufacture and full power testing up to 15MW/m² heat load.

[1]. Chan V. et al 2015 Nucl. Fusion 55 023017

[2] Yuanxi Wan, J.Li, Y.Liu et al., Nuclear Fusion 57 (2017)102009

[3] Y Q Yang et al, 2021 Plasma Phys. Control. Fusion 63 025015