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Activity of Indian High Heat Flux Test Facility

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Plasma facing components (PFCs) of ITER-like tokamak are expected to subject high heat loads up to 10MW/m^2 during the tokamak operation in steady state condition. Selection of plasma facing materials/components required extensive qualification and testing for tokamak application. High Heat Flux Test Facility (HHFTF) plays an important role for the qualification and estimation of the life of the component under defined heat load condition.

HHFTF with heat flux generated by an electron beam system having 200kW power and 45kV maximum acceleration voltage is in full-fledged operation since 2016. HHFTF is dedicated for high heat flux testing of numerous materials and plasma facing components (small & medium sized) for several thousands of thermal cycles at different heat loads. The facility is equipped with high vacuum pumping systems with pressure regulation, high pressure high temperature water circulation loop and several diagnostics devices such as pyrometers, IR-cameras, video cameras, flow, pressure and temperature sensors .

This paper describes the main capabilities of the HHFTF and glimpse of various test performed on plasma facing materials and components.

Country or International Organization

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