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Particle and Power Exhaust in EAST LIANG WANG, FANG DING, YAOWEI YU, KAIFU GAN, YUNFENG LIANG, GUOSHENG XU, BINGJIA XIAO, YOUWEN SUN, GUANGNAN LUO, XIANZU GONG, JIANSHENG HU, JIANGANG LI, BAONIAN WAN, ASIPP, China, RAJESH MAINGI, PPPL, US, HOUYANG GUO, ANDREA GAROFALO, GA, US, EAST TEAM — A total power injection up to 0.3GJ has been achieved in EAST long pulse USN operation with ITER-like water-cooling W-monoblock divertor, which has steady-state power exhaust capability of 10 MWm^{-2}. The peak temperature of W target saturated at t = 12 s to the value T≈500°C and a heat flux ≈3MWm^{-2} was maintained. Great efforts to reduce heat flux and accommodate particle exhaust simultaneously have been made towards long pulse of 10^2s time scale. By exploiting the observation of Pfirsch–Schlter flow direction in the SOL, the Bt direction with Bx∇B away from the W divertor (more particles favor outer target in USN) was adopted along with optimizing the strike point location near the pumping slot, to facilitate particle and impurity exhaust with the top cryo-pump. By tailoring the 3D divertor footprint through edge magnetic topology change, the heat load was dispersed widely and thus peak heat flux and W sputtering was well controlled. Active feedback control of total radiative power with neon seeding was achieved within f_{rad} =17-35%, exhibiting further potential for heat flux reduction with divertor and edge radiation. Other heat flux handling techniques, including quasi snowflake configuration, will also be presented.

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