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Compatibility of RMP ELM control with divertor heat flux dispersal and detachment in KSTAR JOONWOOK AHN, ORNL, YONGKYOON IN, National Fusion Research Institute, ALBERTO LOARTE, ITER Organization, JUN GYO BAK, BIN CAO, YOUNGMU JEON, JAYHYUN KIM, HYUNG HO LEE, GUNYOUNG PARK, National Fusion Research Institute, JONG-KYU PARK, Princeton Plasma Physics Laboratory, SUK HO HONG, WON HA KO, SI WOO YOON, National Fusion Research Institute — RMP ELM suppression can help avoid transient peak heat flux problem in tokamaks but the steady state heat flux should be also effectively dispersed over the divertor surface, either by profile broadening or divertor detachment. Low-n RMPs were utilized to address the effect of B-field structure, including intentionally misaligned RMP configuration, and divertor gas puffing on both heat and particle flux footprints. Particularly, full ELM suppression for n=2 at q95=3.4 was successfully sustained even with the strong gas puffing and the subsequent density ramp up until the plasma finally disrupted due to the apparent radiation loss. On the other hand, as for the n=1 RMP ELM suppression at q95=5, both heat and particle fluxes were reduced significantly near the outer strike point (OSP) with divertor gas puffing (indicative of partial detachment) but the ELM suppression itself was not sustained. Overall, good progress in high-density ELM suppression for n=2 was made and this needs to be combined with the stable divertor detachment, which was demonstrated for n=1. Detailed analyses with various plasma parameters and response to RMPs will be discussed. Work supported by the U.S. DOE, contract # DE-AC05-00OR22725.

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