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Search for an optimal RMP-driven, ELM-crash-suppression in terms of divertor thermal loading[1] YONGKYOON IN, Ulsan Natl Inst of Sci Tech, HYUNGHO LEE, National Fusion Research Institute, ALBERTO LOARTE, ITER — Significant progress has been made in controlling edge-localized-modes (ELM)-crashes using resonant magnetic perturbation (RMP), preventing transiently excessive particle and heat fluxes from damaging plasma facing components and divertor. In that regard, an optimal RMP-driven, ELM control may be defined based on minimal thermal loading, given otherwise similar plasma conditions. Taking advantage of the ITER-like 3-row in-vessel control coils in KSTAR, a series of intentionally misaligned configurations (IMC) driven, ELM-crash-suppression have been explored in terms of divertor heat flux footprints [1]. So far, 3-row IMC-driven divertor heat flux broadening has not been observed on 2-row IMC attempts, even when the mid-row (that has stronger coupling than off-midplane rows) has been energized. Also, when the plasma response gets stronger during RMP-driven, ELM-crash-suppression, a much more peaked heat flux poses a higher risk on divertor. In a sense, RMP-driven, ELM-crash-mitigation might be more effective in diffusing the thermal loads rather than RMP-driven, ELM-crash-suppression. Overall, an optimal RMP-driven, ELM control may require us to consider multi-faceted aspects beyond RMP-driven, edge pedestal changes. [1] Y. In et al, Nucl. Fusion **59**, 126045 (2019)

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Yongkyoon In
Ulsan Natl Inst of Sci
Tech

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