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**Enabling access to high performance scenarios using scraper elements in Wendelstein 7-X** JEREMY LORE, Oak Ridge National Laboratory, W7-X TEAM, IPP Greifswald — The W7-X stellarator has recently completed the first campaign with an island diverted configuration, successfully demonstrating 30 second plasmas with stable power detachment and record triple products for a stellarator. High performance discharges are envisioned for the next campaign, for which simulations predict a net toroidal current of 40kA which evolves over  $\sim 100$  seconds and shifts the island chain radially inwards. This evolution results in a predicted transient overload along the edges of the divertor. One solution to this overload problem is the installation of “scraper elements”, which intercept flux to the overloaded components during the toroidal current evolution. To test this concept, two scraper elements were installed during the last campaign. A set of magnetic configurations were developed to mimic the topology of specific points in the current evolution using the W7-X coil set. Experiments showed measured heat flux patterns that agreed well with predictive simulations from field line diffusion and EMC3-EIRENE. The scraper elements reduced the flux to the divertor edges as expected, with a corresponding reduction in the subdivertor pressure. These results demonstrate that scraper elements can enable access to high performance scenarios with significant current.

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