

## Synergy between fast-ion transport by core MHD and test blanket module fields in DIII-D experiments

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**Abstract.** Fast-ion transport caused by the combination of magnetohydrodynamic activity and a mock-up test-blanket module (TBM) coil is measured in the DIII-D tokamak. The primary diagnostic is an infrared camera that measures the heat flux on the tiles surrounding the coil. The combined effects of the TBM and four other potential sources of transport are studied: neoclassical tearing modes, Alfvén eigenmodes, sawteeth, and applied resonant magnetic perturbation fields for the control of edge localized modes. A definitive synergistic effect is observed at sawtooth crashes where, in the presence of the TBM, the localized heat flux at a burst increases from  $0.36 \pm 0.27$  to  $2.6 \pm 0.5$  MW/m<sup>2</sup>.

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