

Abstract Submitted  
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**New Frontier Science Campaign on DIII-D launched in 2017** M KOEPKE, WVU, R BUTTERY, GA, T CARTER, UCLA, J EGEDAL, C FOREST, UWisc, W FOX, H JI, PPPL, G HOWES, U-Iowa, P PIOVESAN, CNR, J SARFF, UWisc, F SKIFF, U-Iowa, D SPONG, ORNL, DIII-D FSE COLLABORATION COLLABORATION — The DIII-D Frontier Science Experiments initiative explores the potential to use the DIII-D tokamak facility to investigate questions of value beyond the usual fusion-energy science mission of DIII-D. The campaign is unique within DOE-SC-FES because the DIII-D tokamak supplied a multi-day-shot platform for non-fusion-energy-motivated research for the first time. All selected FSE campaign projects competed on the basis of potential intellectual impact and on the degree to which the ability to achieve success as a transformational advance relied on the capabilities of DIII-D. The motivation of the following FSE projects, as well as the selection process, will be summarized (1) Self-organization of Unstable Flux Ropes: Universal Structures in Space/Astrophysical Plasmas (2) Impact of Magnetic Perturbations on Turbulence: Zonal Flow Interactions and Saturation (3) Interaction of Alfvén/whistler fluctuations and Runaway Electrons (4) Self-consistent chaos in magnetic field dynamics These basic-plasma experiments, conducted in collaboration with the DIII-D team, were carried out during 5 shot days in FY2017. Additional days are earmarked in FY2018. Future studies with additional FSE-community members are envisioned. Opportunities exist to piggy back with DIII-D research A proper solicitation and peer review would be appropriate going forward if this activity on DIII-D continues Funding from U.S. DOE is gratefully acknowledged.

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