

Abstract Submitted
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FLARE (Facility for Laboratory Reconnection Experiments): A Major Next-Step for Laboratory Studies of Magnetic Reconnection H. JI, A. BHATTACHARJEE, S. PRAGER, Princeton U., S. BALE, UC-Berkeley, T. CARTER, N. CROCKER, UCLA, J. DRAKE, U. Maryland, J. EGEDAL, J. WALLACE, U. Wisconsin, E. BELOVA, R. ELLIS, W. FOX, P. HEITZENROEDER, M. KALISH, J. JARA-ALMONTE, C. MYERS, W. QUE, Y. REN, P. TITUS, M. YAMADA, J. YOO, PPPL, W. DAUGHTON, LANL — A new intermediate-scale plasma experiment, called the Facility for Laboratory Reconnection Experiments or FLARE, is under construction at Princeton as a joint project by five universities and two national labs to study magnetic reconnection in regimes directly relevant to space, solar, astrophysical, and fusion plasmas. The currently existing small-scale experiments have been focusing on the single X-line reconnection process in plasmas either with small effective sizes or at low Lundquist numbers, but both of which are typically very large in natural and fusion plasmas. The design of the FLARE device is motivated to provide experimental access to the new regimes involving multiple X-lines at large effective sizes and high Lundquist numbers. The motivating major physics questions, the construction status, and the planned collaborative research will be discussed.

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