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Development of linear transformer driver technologies at the University of Rochester MATTHEW EVANS, AIDAN BACHMANN, TYLER MASON, RYLEY ROBINSON, ROMAN SHAPOVALOV, JAMES YOUNG, PIERRE GOURDAIN, University of Rochester — The High Amperage Driver for Extreme States (HADES) being built at the University of Rochester is a compact linear transformer driver (LTD) designed to produce 1 MA of current in 250 ns rise time. HADES is designed to be modular and portable allowing for the whole machine to be relocated easily next to an XFEL. In developing HADES, we identify design obstacles and engineering hurdles typically connected with the construction of compact high voltage systems. In this talk I will present the different solutions we used to overcome these limitations using a cavity containing 22 bricks. Each brick is composed of two 60 nF capacitors and a high voltage gas switch. Investigation into the lifespan of the LTD components such as the charging resistors, were rested to determine time between LTD maintenance. HADES will be used to produce large volumes of matter under extreme conditions in the z-pinch geometry.

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