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1P82 - High Power Ćuk Converter for Fusion Science Applications

Monday 24 June 2019 13:00 (1h 30m)

Eagle Harbor Technologies (EHT), Inc. is developing a Ćuk converter for local helicity injection and magnet driving and control for the Pegasus Toroidal Experiment at the University of Wisconsin –Madison. A Ćuk converter has low output ripple; high efficiency; voltage gain greater than one, allowing for deeper energy storage utilization; continuous power flow that lowers output EMI, reducing noise generation; continuous input and output current –energy flow from the series capacitor allows for greater control of the injector currents; and series arrangements can be utilized that isolate individual switch modules so a failure does not potentially damage all solid-state switches. EHT will utilize previously developed precision gate drive technology that allows for high frequency switching, which reduces the capacitor and inductor values significantly, making the design more compact and lower cost. EHT has designed and built a first-generation Ćuk converter that was tested at Pegasus. We will present the Phase I project plan and the results of the project.

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