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Modular, High-Energy, 4 MA driver for Exploding Foil Initiators*

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An Exploding Foil Initiator (EFI) is one method used to detonate secondary high-explosives without the use of sensitive, primary high-explosives.
We are developing a new, high-energy EFI system (also known as an E-gun) to replace and enhance an existing E-gun that is near its end of life. The existing E-gun stores 48 kJ at 40 kV and has been used at currents up to 1 MA. The new system will employ a modular design. Each module will store 61 kJ at 60 kV and be rated at 500 kA. The full system would be comprised of eight modules for a total possible current of up to 4 MA.
We are building two prototype modules. The first design employs metal-can, traditional-style capacitors with Scyllac style bushings. The second design employs FATSCAP-style, plastic-case capacitors originally built for the Atlas facility.
We are designing the modules to allow different types of closing switches to be utilized. Our two main switching approaches are the Railgap switch and a switch based on detonators.
We will discuss our designs and present any available results from the prototypes.

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