development," Anantha Krishnan, senior vice president of the General Atomics Energy Group, told *NN*. "GA's business model is to provide our unique technical expertise and capabilities to enable our collaborators in the fusion energy industry to successfully bring fusion energy to the market," Krishnan added. "We work closely with a wide range of collaborators across the fusion landscape, including those focused on magnetic as well as inertial fusion."

In addition to being Pacific Fusion's cofounder and CTO, LeChien is coinventor of the impedance-matched Marx generator (IMG) on which the company's power plant concept relies.

"The IMG was inspired by the need for a more practical, efficient, and reliable architecture for commercial fusion," LeChien explained. "As with a traditional Marx generator, it charges capacitors in parallel and discharges them in series. In this case, its triggering matches the speed of electromagnetic waves, so energy is delivered with about 90 percent efficiency. This boosts performance while cutting the size of the fusion system in half. The IMG uses lower-voltage components and standard materials, making it safer, easier to assemble, and more cost effective."

Each pulser module consists of stages (32 for the demonstration system) connected in series along a pulse tube. Each of the circular stages features multiple "bricks" (10 per stage for the demonstration system) positioned around the circumference of the stage; each brick consists of two capacitors and a switch. The electricity stored in the capacitors is released in pulses that speed through metallic pulse tubes toward the fusion chamber.

Each pulser module has a diameter of about 1.9 meters and can deliver about 2 TW of peak power in a single fast pulse. Pacific Fusion expects its demonstration system to store about 80 megajoules of electrical energy

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