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# Multicell dielectric disk accelerating structure design and low power results

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Utilizing short RF pulses (∼9 ns) with Dielectric Disk Accelerators (DDA) is a way to improve the energy efficiency of a linear accelerator and decrease the required footprint while still achieving large energies. A DDA is an accelerating structure that utilizes dielectric disks to improve the shunt impedance while still achieving large accelerating gradients. A single cell clamped DDA structure was designed and high power tested at the Argonne Wakefield Accelerator, reaching an accelerating gradient of 102˜MV/m. A multicell clamped DDA structure has been designed and fabricated. Simulation results for this new structure show a 108˜MV/m accelerating gradient with 400˜MW of input power with a high shunt impedance and group velocity. Engineering designs have been improved from the single cell structure to improve the consistency of clamping over the entire structure. The multicell structure has been fabricated, assembled, and low power tested with high power testing to come.

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## Footnotes

## I have read and accept the Privacy Policy Statement

Yes

**Primary author:** WEATHERLY, Sarah (Illinois Institute of Technology)

**Co-authors:** DORAN, Darrell (Argonne National Laboratory); FREEMIRE, Ben (Euclid Beamlabs LLC); JING, Chunguang (Euclid Beamlabs LLC); POWER, John (Argonne National Laboratory); WISNIEWSKI, Eric (Illinois Institute of Technology)

**Presenter:** WEATHERLY, Sarah (Illinois Institute of Technology)

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