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**Modifying Wire-Array Z-pinch Ablation Structure and Implosion Dynamics Using Coiled Arrays** GARETH HALL, SIMON BOTT, SIMON BLAND, SERGEY LEBEDEV, JAMES PALMER, FRANCISCO SUZUKI, JEREMY CHITTENDEN, Imperial College London — Coiled arrays, a cylindrical array in which each wire is formed into a single helix, have been used to suppress the modulation of ablation at the fundamental wavelength for the first time. Ablation flow in coiled arrays is modulated at the wavelength of the coil. With this ability to control where ablation streamers occur, large wavelength coils were constructed such that wire beaks had sufficient axial separation that perturbations in the implosion sheath did not merge. This produced a new, organised mode of implosion in which the global instability can be controlled and the perturbations correlated between all the wires in the array. For large wavelength 8-wire coiled arrays, this produced a dramatic increase in x-ray power, equaling the x-ray power of a 32-wire straight array. These experiments were carried out on the MAGPIE generator (1MA, 240ns) at Imperial College, London. This research was sponsored by Sandia National Laboratories Albuquerque, the SSAA program of NNSA under DOE Cooperative Agreement DE-FC03-02NA00057.

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