

Abstract Submitted
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Progress Towards a Multicell Trap for Positron Storage¹ J.R. DANIELSON, T.R. WEBER, C.M. SURKO, University of California, San Diego — There are many potential applications of high-capacity and/or portable antimatter traps. Here, we describe the latest progress toward the development of a novel multicell Penning-Malmberg trap that will be capable of accumulating orders of magnitude more positrons than is possible presently.² This design represents the next major step in antimatter storage technology. Described here is the design for a 21 cell trap capable of accumulating and storing more than 5×10^{11} positrons using 1 kV confinement potentials. Experiments with electron plasmas establishing techniques critical to the implementation of a practical multicell trap are discussed. This trap could be used to multiplex the output of the new generation of positron sources, either operating now or currently under development, as well as to provide record-high bursts of positrons for a variety of applications.

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