Abstract Submitted
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Unitary Penning traps JOSEPH TAN, National Institute of Standards and Technology, SAMUEL BREWER, University of Maryland at College Park, NICHOLAS GUISE, NIST — We have constructed Penning traps in extremely compact forms, with unitary architectures that fully integrate NdFeB magnets (1.2 Tesla remnant magnetic field) within the electrode structure (occupying < 150 cm^3 assembled). A room-temperature apparatus has proven to be very useful in slowing and capturing ions extracted from an electron beam ion trap (EBIT).[1] Here we present a two-magnet Penning trap designed to facilitate ion manipulation and optical experiments with stored ions. Some test results are presented. Experiments using this novel system are discussed in two presentations at this meeting.[2,3] Unitary architecture can be particularly advantageous in small-instrument development (*e.g.*, mass spectrometers) and in facilities or missions that have severe space constraints.

[1]J. N. Tan, S. M. Brewer, and N. D. Guise, to appear in *Review of Scientific Instruments*
[2]N.D. Guise, *et al.*, "Charge exchange and spectroscopy with isolated highly-charged ions," at this meeting.
[3]S. M. Brewer, *et al.*, "Observing forbidden radiative decay of highly-charged ions in a compact Penning trap," at this meeting.

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