

A compact penning trapped ion system for precision measurement

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Here we described a compact penning trapped ion system. The traditional superconducting magnet is changed into permanent magnet. We did a simulation about the magnet system and the magnetic field uniformity is simulated. Experiment are under developing to measure the magnetic field uniformity. The penning trap geometry is also designed to compatible with the magnet. Laser cooling technic should be developed to cool the motions of the ions. The ion crystal should be construct for sensing. At the first stage of the design. Weak force will be measured and other physical quantities are also designed for sensing. Ca atoms are evaporated from a homemade oven under high vacume for ion loading. The Ca atoms are ionized by a pulsed laser beam.

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