

Abstract Submitted
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Magnetic Microtrap Array of Ultracold Atoms BIN JIAN, WILLIAM A. VAN WIJNGAARDEN, York University — A novel kind of magnetic microtrap has been demonstrated for ultracold neutral atoms. The microtrap consists of two concentric current loops having radii r_1 and r_2 . A magnetic field minimum can be generated along the axis of the loops with oppositely oriented current flowing through the loops. Selecting $r_2 : r_1 = 2.2$ maximizes the microtrap force. The strength and the position of the microtrap can be adjusted by applying an external bias magnetic field. A microtrap array can be formed by aligning individual microtraps together. A linear array of 3 microtraps having $r_1 = 300 \mu\text{m}$, was loaded with more than 10^5 ^{87}Rb atoms using three different method: 1) from a transported quadrupole magnetic trap, 2) an optical dipole trap, or 3) directly from a spin polarized MOT.

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