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Design and Operation of the ATRAP Low-Inductance Ioffe Trap ERIC TARDIFF, CHRISTOPHER HAMLEY, NATHAN JONES, GHANSHYAMBHAI KHATRI, GERALD GABRIELSE, COLE MEISENHELDER, THARON MORRISON, Harvard University, SIU AU LEE, CORY RASOR, SAMUEL RONALD, DYLAN YOST, Colorado State University, BARTOSZ GLOWACZ, MARCIN ZIELINSKI, Jagiellonian University, DIETER GRZONKA, Forschungzentrum Juelich, DANIEL ZAMBRANO, Northwestern University, OLGA ANDRIYEVSKA, ERIC HESSELS, TAYLOR SKINNER, CODY STORRY, York University — The ATRAP experiment aims to perform Lyman alpha cooling and 1S-2S spectroscopy of trapped antihydrogen atoms for a precision test of CPT symmetry. Our upgraded experimental apparatus includes a neutral-particle confining Ioffe trap that features several improvements over the previous generation. This Ioffe trap can run in both octupole and quadrupole configurations, be shut off in tens of milliseconds for reduced cosmic ray background over the antihydrogen annihilation window, and be fully energized in a few minutes. This allows for a much reduced duty cycle. As in the previous generation, it features four radial ports, allowing for three-axis laser access to the trapping volume. Commissioning tests have been completed and show that we can reliably energize the trap to depths of at least 405 mK (octupole) or 513 mK (quadrupole).

Eric Tardiff
Harvard University

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