Laser Cooling to the Zero-Point Energy of Motion

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A single trapped $^{198}Hg^+$ ion was cooled by scattering laser radiation that was tuned to the resolved lower motional sideband of the narrow $^2S_{1/2}$-$^2D_{5/2}$ transition. The different absorption strengths on the upper and lower sidebands after cooling indicated that the ion was in the ground state of its confining well approximately 95% of the time.

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