

Abstract Submitted  
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**A New Concept of Liquid Lithium Lens for Muon Cooling**<sup>1</sup> KEVIN LEE, DAVID CLINE, ALPER GARREN, YASUO FUKUI, UCLA — A new concept of liquid lithium lens is presented. The interest in the liquid lithium lens has been its potentially strong focusing for beam cooling, higher repetition rate than a few cycles per second and longer lifetime than solid lithium lens. Prototype liquid lithium lens for the Fermilab antiproton source was built and tested at BINP in Russia by G. Silvestrov and colleagues in the 1990s with some success, which circulated the liquid hot lithium using a liquid-metal pump. We present here a detailed conceptual design of the liquid lithium lens using push-pull action on the liquid lithium for circulation. The design and construction appears to be simple. We discuss the muon beam cooling possibility with this Li lens system.

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