

Abstract Submitted  
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**Particle Confinement Times for Discharges with Lithium Plasma-facing Surfaces in CDX-U**<sup>1</sup> TIM GRAY, ROBERT KAITA, RICHARD MAJESKI, HENRY KUGEL, JEF SPALETA, DAREN STOTLER, JOHN TIMBERLAKE, LEONID ZAKHAROV, Princeton Plasma Physics Lab, VLAD SOUKHANOVSKII, LLNL, RAJESH MAINGI, ORNL — Recent experiments on the CDX-U spherical torus have successfully achieved a significant reduction in recycling with large-area liquid lithium plasma-facing surfaces. Modeling of low recycling discharges with DEGAS2, a neutral particle transport code, has been performed. Utilizing available spectroscopic data, this modeling allows a calculation of a global particle confinement time ( $\tau_p$ ) for the low recycling discharges. The  $\tau_p$  values deduced with the modeling were used with  $\tau_p^*$  to obtain the recycling coefficient  $R$ . Measurements of  $\tau_p^*$  were performed by using transient gas puffing and observing the time dependence of the plasma density with microwave interferometry. The effects of a liquid lithium toroidal limiter and evaporative lithium coatings on the recycling coefficient  $R$  will be presented.

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