Supplementary Information

Operando Ultrasonic Monitoring of Lithium-Ion Battery Temperature and Behavior at Different Cycling Rates and Under Drive Cycle Conditions

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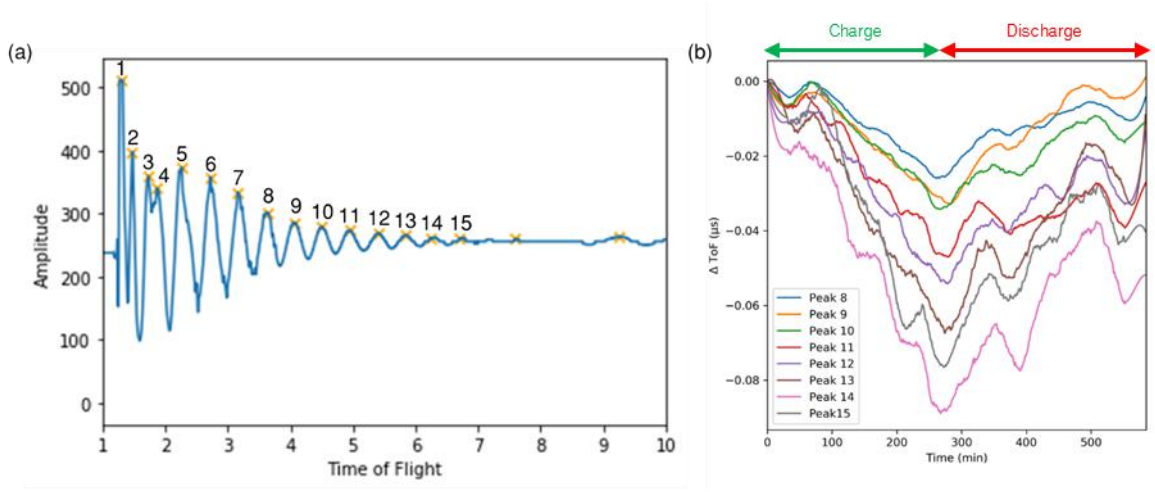
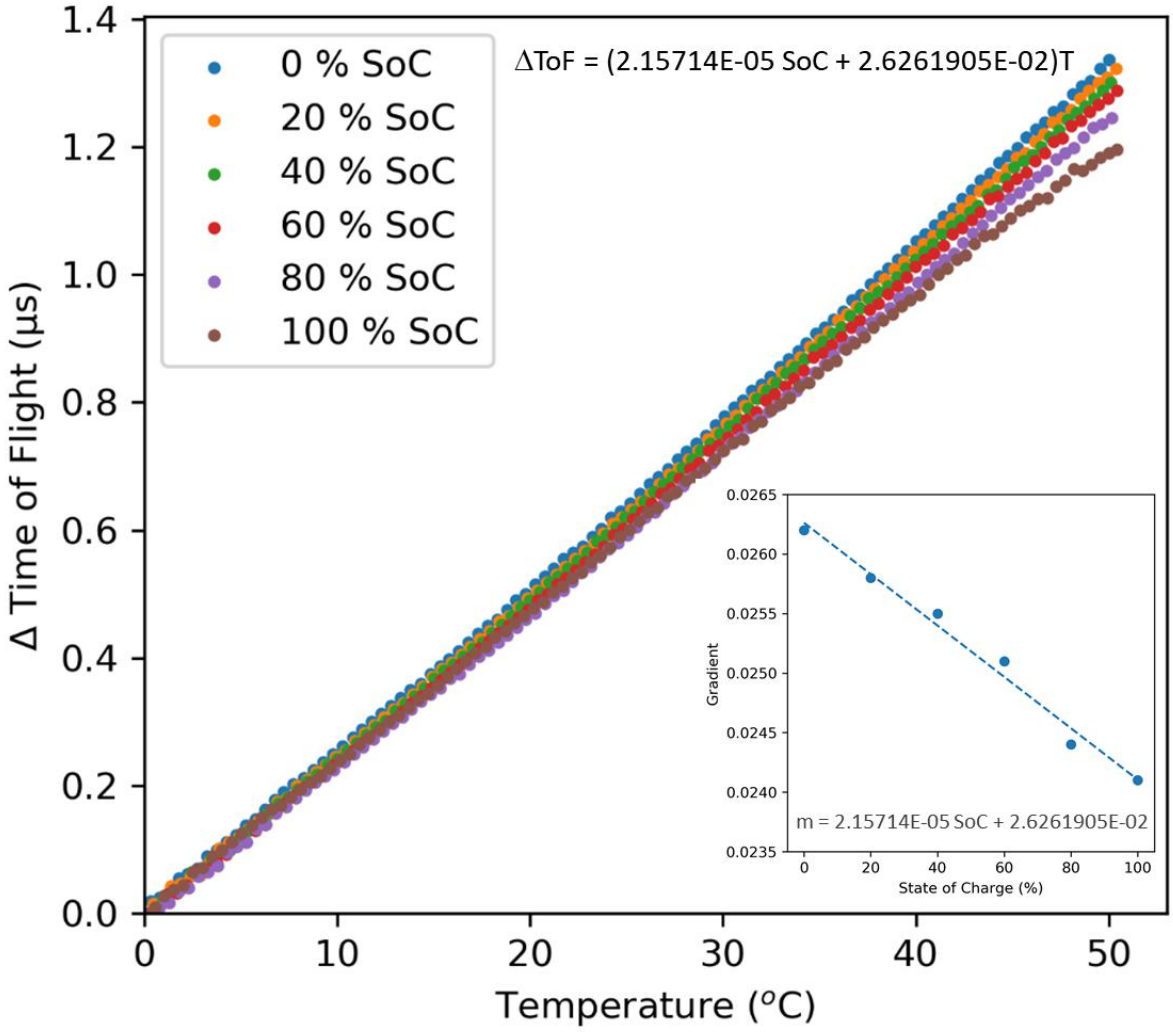
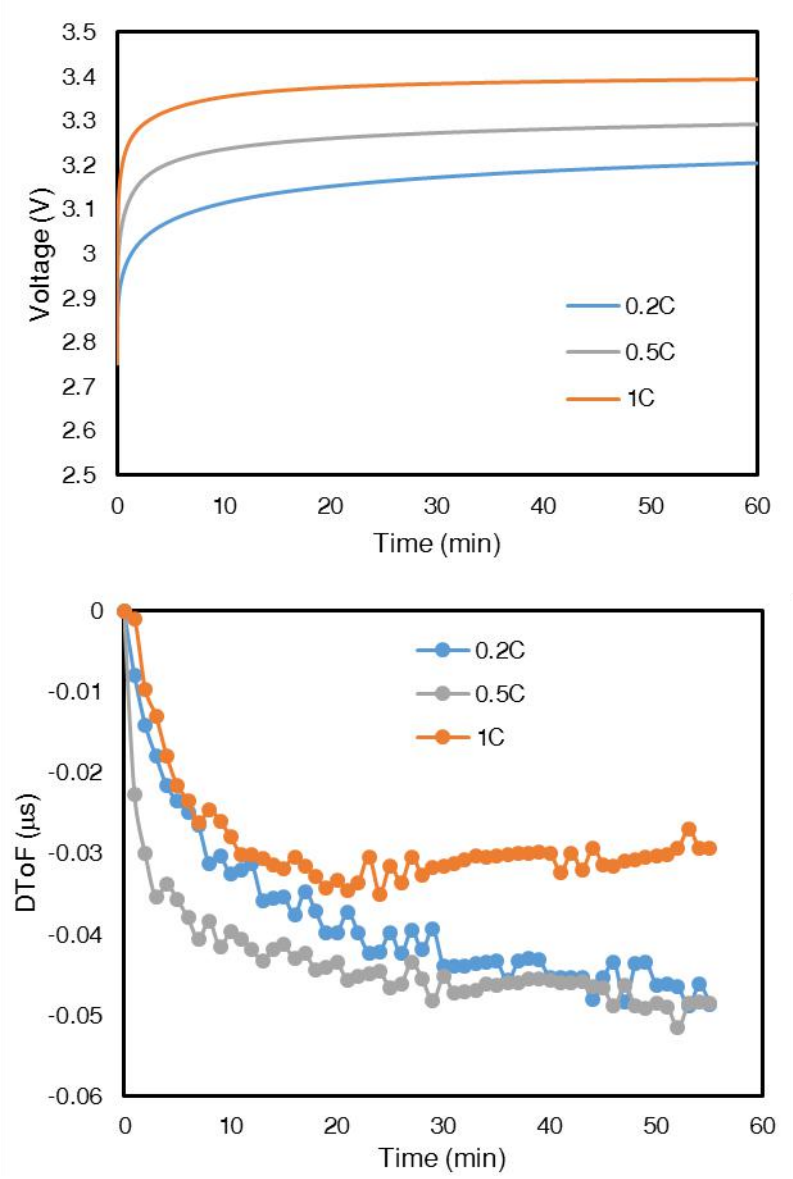


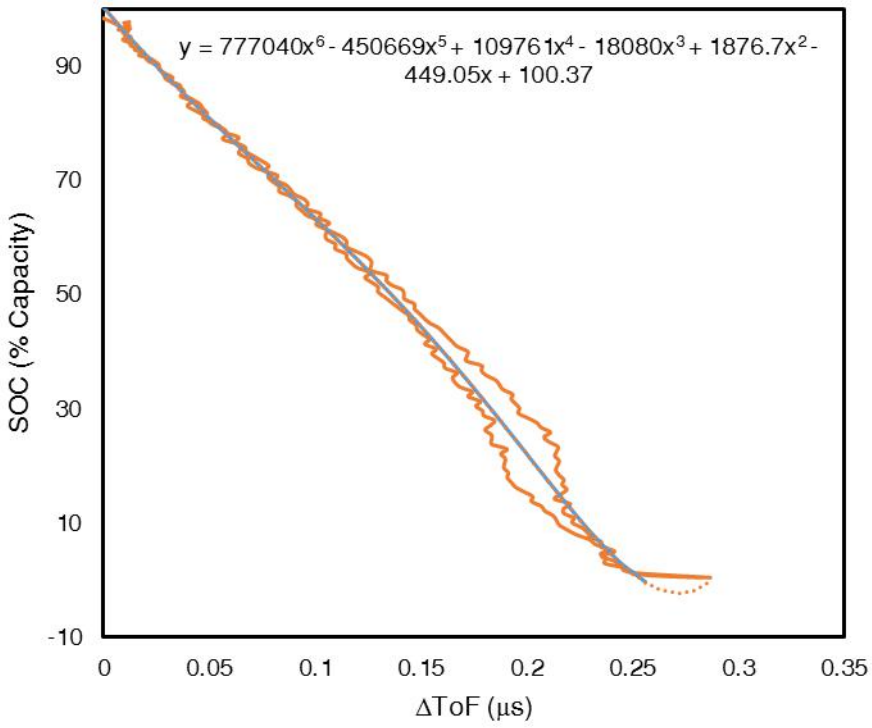
SI Figure 1. (a) peaks at lower ToF values labeled 1-15 (b) the change in ToF of the labeled peaks across the course of the charge discharge test shown in Figure 1 in the manuscript.



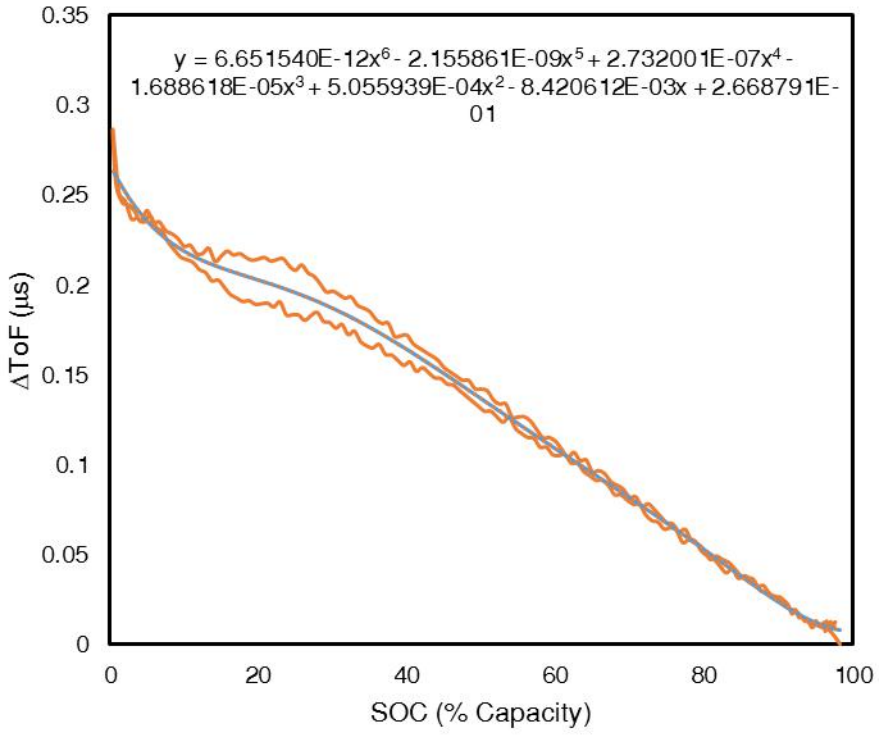
SI Figure 2. The change in time of flight can be calculated based on the equation shown in this plot which takes into account the varying gradient of the plot based on the state of charge (insert plot and equation)



SI Figure 3. (a) The voltage relaxation after discharge at 0.2, 0.5 and 1C (b) the temperature corrected ToF relaxation from the same test showing no obvious relationship between C-rate and ToF change.



SI Figure 4. The state of charge of the cell is calculated based on the curve fitted to this example plot from data obtained from C/2 testing.



SI Figure 5. The ToF of the cell is calculated based on the curve fitted to this example plot from data obtained from C/2 testing.