

High throughput robotically assisted electrolyte development

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The Fast Autonomous Screening Test for Electrochemical Response (FASTERTM), is a high throughput electrochemical screening technique developed at CSIRO for rapid assessment of electrochemically active materials. This system leverages robotic actuation, dispensing and mixing of materials into individually addressable electrochemical test cells, which are chemically and physically isolated from each other. In this manner, we seek to screen and identify unique battery electrolyte formulations with superior electrochemical and physical properties. Further, conventional battery electrode materials can be utilized as the working electrode, with electrolyte additives introduced into test cells to elucidate their effect on the electrochemical system being tested. We will report upon the development of the latest iteration of this technology as embodied in Figure 1, which facilitates the rapid preparation and screening of a multitude of electrolyte combinations for the development of next generation battery systems.



Figure 1 – The high throughput robotic electrochemical testing system (FASTER).