

## Pulse Thermal Processing of Solid State Lithium Ion Battery Cathodes

### **Disclosure Number**

201102630

### **Technology Summary**

The current methods of producing all-solid-state lithium ion batteries are only suited for small-scale, low-power cells and involve high-temperature vacuum techniques. The present invention involves combining Planar Energy Devices' patented SPEED processing for deposition of NMCA or CZSS cathode films and thermally stabilizing the films to 330-400 °C in a furnace. Once the cathode films are thermally stabilized to remove most of the volatiles and obtain a crystalline structure, they are subjected to an advanced photonic processing (i.e. PTP) step. PTP is achieved using a PulseForge 3300 with pulse programming capability and substitutes for a high-temperature furnace annealing step to 650-700 °C. The photonic processing must be done with great care, so the NMCA or CZSS films will be properly recrystallized but not physically damaged, which is the primary subject of this invention disclosure.

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