

## Effect of Sintering Temperature on Transport Properties of Garnet-Type Solid-State Electrolytes for Energy Storage Systems

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**Abstract :** In recent years, an impressive research has been conducted to introduce the solid-state electrolytes for the future energy storage devices like Li-ion batteries more specifically. In this work we tried to prepare a ceramic electrolyte (Li<sub>6.5</sub>La<sub>2.5</sub>Ba<sub>0.5</sub>NbZrO<sub>12</sub>(LLBNZO)) and sintered the pellets of as-prepared material at elevated temperature like 1050, 1100, 1150 and 1200 °C. The objective to carry out this research was to observe the effect of temperature on porosity, density and transport properties of materials. Preliminary results suggest that the material sintered at higher temperature could show enhanced performance in terms of fast ionic transport. This enhancement in performance can be attributed to low porosity of materials which is result of high temperature sintering.

**Keywords :** solid state battery, electrolyte, garnet structures, Li-ion battery

**Conference Title :** ICNMA 2015 : International Conference on Nanotechnology Materials and Applications

**Conference Location :** Paris, France

**Conference Dates :** December 30-31, 2015