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(54) **Title:** LITHIUM LANTHANUM ZIRCONIUM OXIDE (LLZO) POWDER

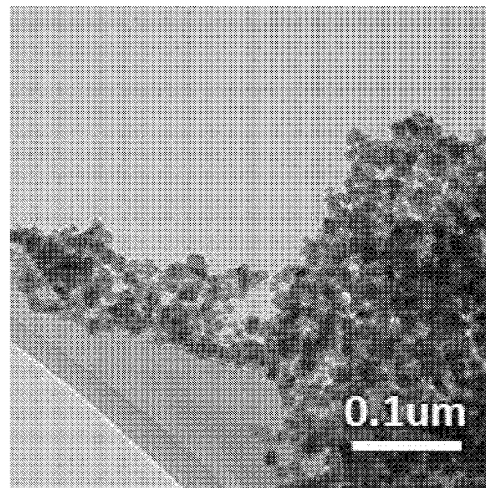


FIG. 3

(57) **Abstract:** Disclosed herein are embodiments of doped and undoped spherical or spheroidal lithium lanthanum zirconium oxide (LLZO) powder products, and methods of production using microwave plasma processing, which can be incorporated into solid state lithium ion batteries. Advantageously, embodiments of the disclosed LLZO powder display a high quality, high purity stoichiometry, small particle size, narrow size distribution, spherical morphology, and customizable crystalline structure.

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