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Aliovalently-Doped Garnets for Li Battery Solid State Electrolytes DEREK K. SCHWANZ, ERNESTO E. MARINERO, Purdue University — We report on a new family of fast ionic conductivity electrolytes based on the garnet LiLaZrO. Partial substitution of Zr by aliovalent atomic species through solid state solution synthesis results in ionic conductivities 2 orders of magnitude larger than the tetragonal phase of LiLaZrO and comparable to that of its cubic phase. The synthesis temperature is 400C lower than that required for the cubic stabilization of LiLaZrO. Ongoing impovements on microstructure and film density as well as optimization of the garnet stoichiometry are expected to yield ionic conductivities surpassing the highest values reported to-date on cubic doped LiLaZrMO (Ta, Al, W, Nb)

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