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**The influence of ion content on mobility and ion aggregation in PEO-based single-ion conductors** DAVID CALDWELL, JANNA MARANAS, Pennsylvania state university — PEO-based ionomers reduce concentration polarization in solid polymer electrolytes by binding the anion to the polymer backbone. Ionomers have significant ion aggregation compared to PEO/salt systems, and the influence of these aggregates is unclear. When ion transport is coupled to the segmental dynamics of the polymer, aggregation will always reduce ion motion and conductivity. However, the conductivity of PEO ionomers is not sensitive to the degree of aggregation. We present results of molecular dynamics simulations where ion content is systematically varied. We consider the influence of ion content on ion aggregation, polymer mobility and cation motion.

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