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(G*) Effective Charges in Entropy Stabilized Oxides

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Entropy stabilized oxides, containing a large number of different elements, exhibiting simple crystal structure have shown interesting properties such as colossal dielectric permittivity, superionic conductivity and enhanced exchange coupling.
To study how the ionic character can be tuned by using different mixtures of oxides, the effective charge for the rocksalt structure high entropy oxide (CuCoMgZnNi)O and medium entropy oxides including (CoMgZnNi)O, (CuMgZnNi)O, (CuCoZnNi)O, (CuCoMgNi)O were calculated by using Scott formula for effective charge and the data from infrared reflectance measurements. The data suggest that (CoMgZn Ni)O has the highest ionic character and the lowest ionic character belongs to (CuCoZnNi)O which has the the lowest effective charge.

Authors: AFSHARVOSOUGHI, Tahereh (Brock University); CRANDLES, David (Brock University)

Presenter: AFSHARVOSOUGHI, Tahereh (Brock University)

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