Nanoscale rock-salt structured high-entropy metal oxides for catalysis

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I. Introduction
- High entropy oxide (HEO) materials are a new class of solids formed by configurational entropy generated by their multi-elemental composition [1]
- Due to the large range of multi-elemental configurations, it is possible to tune the chemical and physical properties for specific electronic and catalytic purposes [1]
- HEOs are typically formed with a top-down technique which offers little control over morphology [1]

II. Experimental Design

III. Characterization
- Nitrogen Physisorption
- Energy Dispersive X-ray Spectroscopy
- Powdered X-Ray diffraction

IV. Conclusion
- This research focused on the wet chemical synthesis of HEOs with rock-salt structure, made from earth-abundant and inexpensive precursor metals
- The ability to control the structure of this class of materials on the nanoscale remains a challenge
- Tailoring (porosity, morphology) this class of materials offers a path toward using earth-abundant systems to replace rare and expensive metals such as platinum, iridium, and rhodium in renewable energy applications

V. Future Work
- Catalytic performance test with electrochemical characterization (cyclic voltammetry, linear-sweep voltammetry, stability tests)
- Using wet-chemical techniques to see their effect on size, shape, structure, and function

VI. Acknowledgements
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VII. Reference