OAK RIDGE NATIONAL LABORATORY
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Low Temperature Proton Conducting Oxide

Disclosure Number

200501499

Technology Summary

Supplemental to IDR #23. A novel electrolyte with high proton conduction at temperatures less than 550°C has been developed. Conduction via hydrogen ions (protons) has been proven by electrical conductivity and complementary hydrogen flux measurements. Stability in reducing environments has been confirmed by in-situ and ex-situ x-ray diffraction studies on samples with prolonged exposure to reducing conditions. The combination of low temperature and high proton conduction in a stable ceramic oxide will allow a new field of sensors, fuel cells, separation membranes, and electrolyzers to be developed.

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