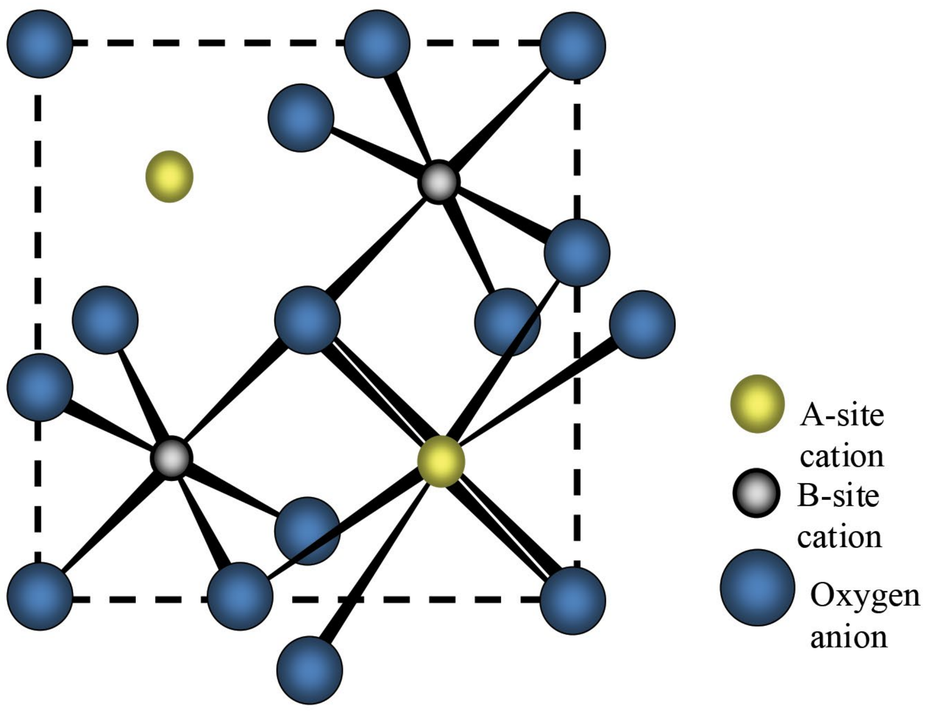
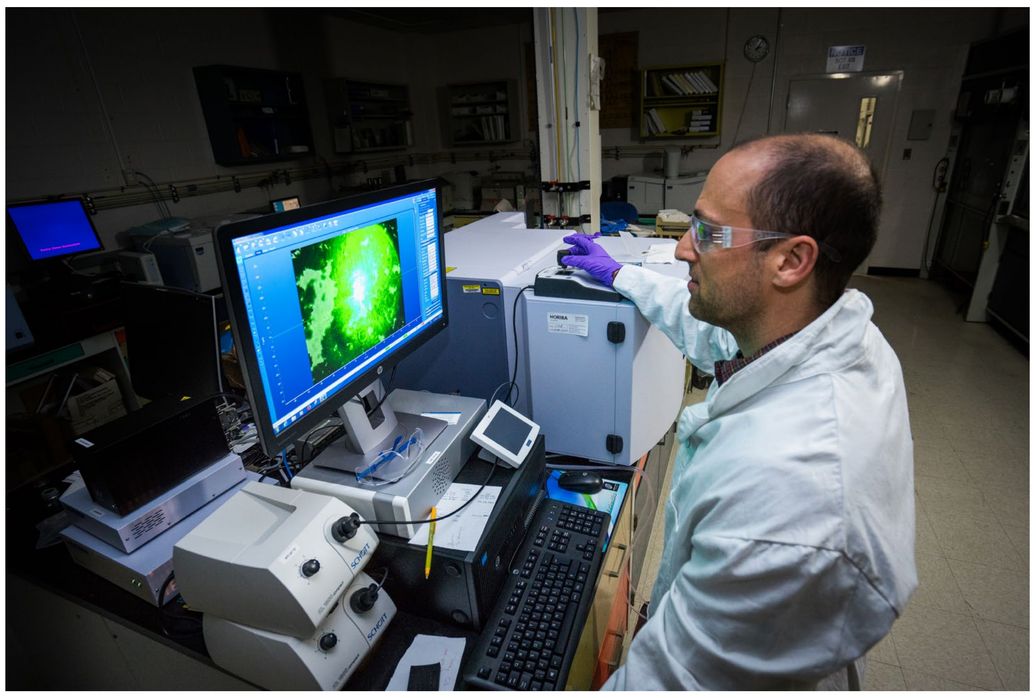
NETL ENERGY INNOVATIONS

Repurposing Fuel Cell Technology for Cleaner Vehicles

The launch of Pyrochem Catalyst Company (PCC) in 2011 marked the first time an NETL technology provided the foundation for an entrepreneurial venture



Structure of the pyrochore catalyst licensed to PCC



Structure of the pyrochore catalyst licensed to PCC

NETL researchers invented a novel catalyst that harnesses the compositional flexibility of the pyrochlore structure, which enhances reaction performance across a range of applications versus traditional catalyst materials. Pyrochlore-based catalysts offer several advantages, including longer lifespans, reduced metal loadings, and expanded operating conditions. These improvements hold significant implications in sustainability applications like fuel reforming for hydrogen production and automotive exhaust remediation. Hence, pyrochlore catalysts make hydrogen production more cost-effective and broaden the range of fuels — beyond methane — that can be converted into hydrogen. In automotive exhaust applications, pyrochlores demonstrated the ability to reduce combustion temperatures of pollutants, improving pollutants remediation during cold starts, where harmful emissions are most prevalent.

In 2011, the pyrochlore catalyst technology was exclusively licensed to start-up Pyrochem Catalyst Company (PCC), marking the first time an NETL-licensed technology formed the foundation of a new company. Recently, PCC completed a spin off company “PCC Hydrogen.” This demonstrates that NETL-developed technology is driving job creation and hence strengthening the U.S. economy

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