Title: Catalyst for Auto-thermal Reforming of Hydrocarbon Fuels Making Hydrogen

Invention: This technology is an optimized chemical compound for catalyst use in auto-thermal reforming (ATR) processes that has demonstrated excellent fuel conversion. This new catalyst can be used to convert a variety of hydrocarbons, such as jet fuel, diesel, gasoline and natural gas, into valuable synthesis gas (syngas) during ATR. Syngas can be used in a number of different commercial synthesis plants or the syngas can be separated into its pure components. Pure hydrogen, distilled from the syngas, can be used as a reliable, efficient energy source for new fuel cell technology.

Background: The general population is often unaware of how catalysts are a part of many objects in their lives. Everything from plastics to cutting edge renewable fuel cell technology are touched at some point by catalysts. To produce these goods and new technologies, a product called syngas is required as a raw input material. But syngas, which is comprised of hydrogen and carbon monoxide, cannot be mined or drilled for, but rather must be produced by an auto-thermal reformer (ATR). Increasing the efficiency of ATR technology through better catalyst design reduces the cost of goods and energy for everyone.

Applications:
- Improvement of fuel conversion metrics in ATR processes
- Large commercial plants that specialize in methanol synthesis, Fisher-Tropsch synthesis, and raw hydrogen production

Advantages:
- Improves performance in fuel conversion
- Experimentally tested
- Works for a variety of hydrocarbon fuels
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