The Fuel of the Future

Orr, Daniel

I focused on trying to find a way to reduce pollution. I had heard a lot about clean environmentally friendly ways to produce power but my main focus was on fossil fuels and the harm that they cause to our planet not only through fracking but through the carbon produced in combusting these fuels. My focus narrowed to a source that wouldn't deplete or damage the environment. A source that is abundant and readily available. That source is water, specifically hydrogen. Hydrogen is often praised because it is more powerful than gasoline and does not create carbon emissions but separating hydrogen from water is done through a process called electrolysis that requires a catalyst to hasten the reaction. The problem with this is that the catalyst can react with the electrolyzer to produce chemical waste which is very damaging to the environment. My goal then became finding a way to separate water into hydrogen and oxygen in a clean efficient way. I singled out a catalyst that would react with water only to produce water and the catalyst itself in a single displacement reaction which allows a very long electrolysis lifespan.

Awards Won: