Auburn University is seeking a licensee or development partner for a patent pending technology for environmental remediation or other filtering applications.

### Overview
Polycyclic aromatic hydrocarbons (PAHs) are an established pollutant to waterways. They are a common byproduct from the burning of fossil fuels and have toxic and carcinogenic properties. The EPA’s Priority Pollutant List contains several compounds in this class. A novel material has been developed to efficiently accumulate and degrade PAHs as well as other contaminants. The single material is able to both collect the target and break it down. The capacity and activity remain high through multiple cycles, needing only light to catalytically degrade the target. Existing remediation techniques may require multiple steps to isolate and degrade a contaminant, but this technology is suitable for continuous use in static conditions.

### Advantages:
- **REUSABLE** - Material maintains capacity and activity.
- **EFFECTIVE** - Contaminant is >99% degraded.
- **SIMPLE** - One step to adsorb and degrade pollutant.

### Description
PAH’s have become common pollutants in soil and water, causing ecological damage in addition to the toxic threat posed to humans. Current remediation techniques are inadequate for cost-effective degradation of the contaminants. Auburn’s novel technology can improve over existing strategies.

A scaffold of activated charcoal is used to support a network of titanate nanotubes (TNTs) in this patent pending material. The activated charcoal also efficiently adsorbs common contaminants such as PAHs, which is a common current strategy for filtering water. The supported TNTs use UV light, such as that from the sun, to catalytically photodegrade the trapped contaminants, neutralizing the threat and restoring the filtering material to its original state. This cycle can be repeated, effectively remediating large amounts of pollution with only a small mass of the unique compound.

Existing adsorption-based techniques struggle to regenerate the adsorbents, even after removal from the contaminated site. Catalytic degradation techniques struggle to effectively address PAHs due to low interaction times. By combining adsorbing and photocatalytic properties, this one material can successfully address these shortcomings and effectively remediate the polluted area.

### Status:
- This technology is currently patent pending; US application number: 20180214851
- This technology is available for exclusive or non-exclusive licensing.
- This technology has been shown in a laboratory setting to efficiently (>99%) degrade PAHs while maintaining high capacity and activity through multiple cycles.