

**Environmental Engineering**

**and Earth Sciences**

**EEES Department Seminar**

‟Per/polyfluorinated Alkyl Substances (PFAS):

Why They Threaten Our Water Supplies and How Photocatalysis Can Help”

**Presented By**

**Dr. Ezra L. Cates, Ph.D.**

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**Abstract**:

Per-/polyfluorinated alkyl substances (PFAS) are a broad class of synthetic organic compounds characterized by having all or most alkyl hydrogen atoms replaced with fluorine. This trait imparts highly useful chemical behavior, including exceptionally high stability, surfactant properties, and omniphobicity. Thus, PFAS have been applied in a wide range of industrial and consumer product applications, including as precursors to, and residuals in Teflon used in nonstick cookware, water-repellant clothing, and flame-retardant textiles, and as additives to paints, cosmetics, and fast food wrappers. PFAS are also the active ingredient in aqueous film-forming foams (AFFFs), which are indispensable for suppression of fuel fires in the petrochemical, aviation, and military sectors.

Dr. Cates will discuss how use of PFAS from AFFFs have resulted in widespread contamination of groundwater surface waters and the challenges of addressing this environmental threat.

He will also present the development of new photocatalytic materials and processes at Clemson for degrading PFAS in water, including catalyst material compositions, effect of PFAS target contaminant structure, water matrix effects, and influence of photoreactor aspects on system performance.

***Friday, November 1, 2019***

***2:30 PM***

***Rich Lab Auditorium***

***Refreshments following Seminar***

***“Attendance is mandatory for graduate students enrolled in EES 8610, EES 9610, and GEOL 8510.”***