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## Finding Radical Ways to Synthesize Phosphorus Containing Molecules

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Finding Radical Ways to Synthesize Phosphorus Containing Molecules

Jeanette A. Adjei

Phosphorus-containing (organophosphorus) molecules are ubiquitous in our everyday lives. Phosphorus is an essential nutrient for animals and plants, and it cycles through rocks, water, soil, sediments, and organisms. Phosphorus compounds have found applications in pharmaceuticals, antimicrobial agents, pesticides, flame retardants, high tech plastics, and more. Phosphorus has had a profound impact on industries and is relied upon to produce valuable consumable products. There is considerable interest in developing new and efficient methods to make organophosphorus molecules. My research focuses on modifying organic small molecules to include a phosphorus atom in their structures. I use a reaction that is driven by light or heat to form phosphorus-carbon bonds. While I create my targeted molecules, this reaction generates little to no by-products. In the future, the organophosphorus molecules I make will be studied and used to speed up the rate of chemical reactions.