Making Carbon–Phosphorus Bonds with Visible light: Challenges and Opportunities

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Reactions involving phosphorus centered radicals play a pivotal role in the construction of organophosphorus ligands, biologically active molecules and π–conjugated molecules. Common synthetic approaches for the generation of such radicals imply the use of harsh reaction conditions. In this presentation, we show that access to a large variety of organophosphorus compounds can be achieved under mild reaction conditions through: i) visible light photoredox catalysis or ii) visible light irradiation of Electron–Donor-Acceptor complexes (EDA). The scope and limitations of these methods will be discussed with a special focus on their mechanistic aspects.

References: