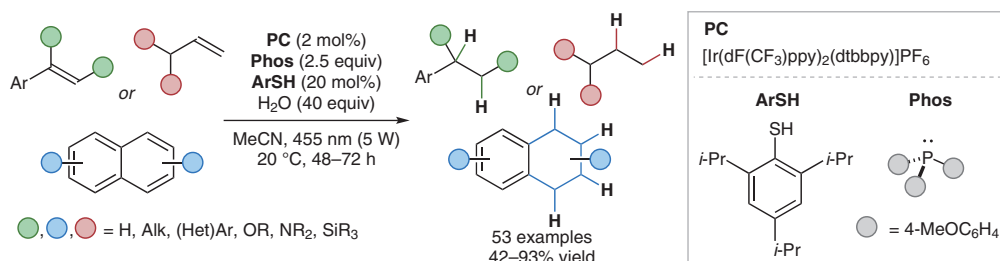
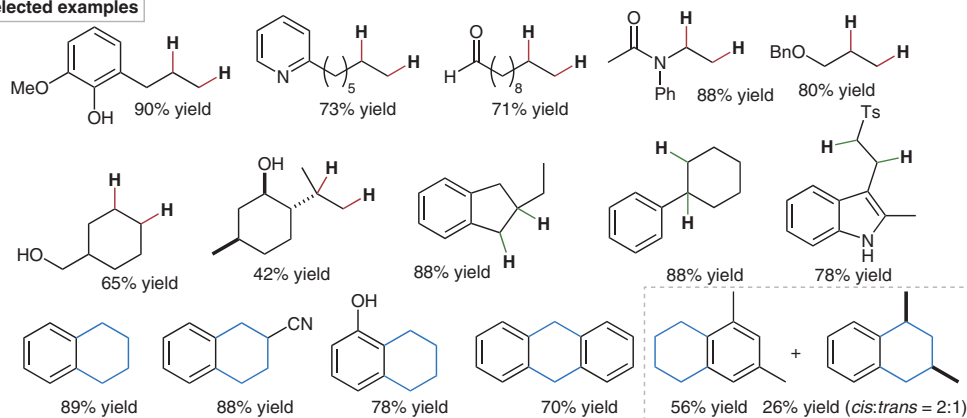


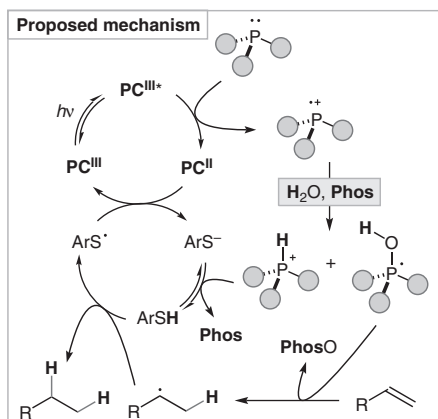
Photocatalytic Radical Alkene Hydrogenation by Phosphine-Mediated Water Activation



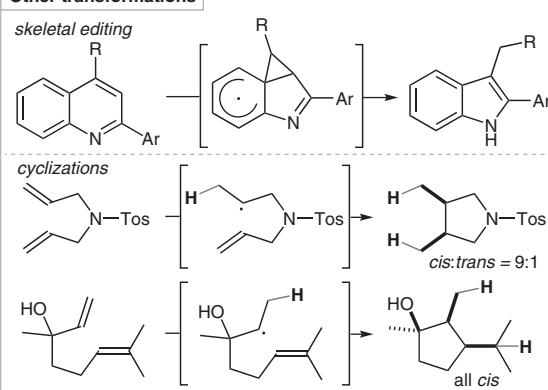
Selected examples



Proposed mechanism



Other transformations



Significance: Studer and co-workers report a photocatalytic radical hydrogenation of alkenes through phosphine-mediated water activation. The method is remarkably compatible with a range of activated and unactivated alkenes, and shows a large functional group tolerance. The corresponding saturated products were generally obtained with good yields and good selectivity.

Comment: The authors elegantly employ hydrogen atom transfer to a closed-shell system to achieve alkene hydrogenation. Using stoichiometric phosphine oxide generation as the driving force, water activation is achieved. This reactivity presents a compelling alternative to known organocatalytic transfer hydrogenations, and additionally facilitates skeletal-editing and cyclization reactions.