## **Catalysts Produce Complex Spirocyclic Molecules in One Step**

Catalysts are the matchmakers of the laboratory, connecting simple molecules together to produce more complex molecules that are important for medicines. materials & energy. From metal catalysts to phosphoric acids, these chiral catalysts help us discover new molecules and use environmentally-friendly more processes.

Catalysts for the first asymmetric [3+2] allylsilane annulation make new silyl spirocycles:

$$\begin{array}{c} [3+2] \\ \text{allyIsilane} \\ \text{annulation} \\ \\ \text{R} \end{array} \begin{array}{c} \text{SiR}_3 \\ \text{ScCl}_2(\text{SbF}_6)\text{-pybox} \\ \text{catalyst} \\ \text{with TMSCI promoter} \end{array} \begin{array}{c} \text{R}_3\text{Si} \\ \text{Oxidative} \\ \text{Cleavage} \\ \text{of $C\text{-Si}$} \\ \text{X = SiR}_3 \\ \text{X = OH} \end{array}$$

Catalysts for an enantioselective **Pictet-Spengler** spirocyclization: