Discovery of cinchona based bifunctional organocatalysts.

As a frontier discipline, the asymmetric organocatalysis has contributed greatly to the last decade’s advances of synthetic organic chemistry. Several activation modes have been developed and applied with great success in the synthesis of chiral molecules. Among the activation concepts, the bifunctional non-covalent organocatalysis has found widespread applications and became one of the main research areas within the field.

Researchers at the Institute of Organic Chemistry have recognized early the potential offered by this activation mode and considerable efforts have been directed toward the development of a new catalyst, or catalyst family. Finally, new epi-cinchona-based thiourea organocatalysts were discovered and reported in Organic Letters in 2005 by the hungarian team. This class of catalyst has generated a heightened interest in the field, myriad of applications repeatedly demonstrated that a wide variety of reactions can be rendered asymmetric and organocatalytic based on those catalysts. As a result, their publication became the most cited paper of the journal in 2005, and became the 5th most cited paper in the history of Organic Letters. Besides academic impacts, these catalysts demonstrated the value of catalysis and organocatalysis to a broader community; a steadily growing interest is observed from industry to apply them in R&D.