Synthesis of Spiro-[Butyrolactone-Pyrrolidine]

The authors developed an asymmetric synthesis of spiro-[butyrolactone-pyrrolidine] catalyzed by Cu(I)/DTBM-BIPHEP delivering exo-selective 1,3-dipolar cycloadducts of azomethine ylides and α-methylene-γ-butyrolactone. In all cases excellent chemical yields and stereoselectivities were achieved.

Comment: Several natural alkaloids and important biological compounds contain spiro-[butyrolactone-pyrrolidine] as core structure making them very attractive targets in the synthetic community. Thus, this finding for the syntheses of bicyclic and tricyclic skeletons with multiple quaternary stereogenic centers is very attractive.