Synthesis of Spiro-[Butyrolactone-Pyrrolidine]

**Significance:** 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.

**Selected examples:**

- **CuBF₄/DTBM-BIPHEP (3 mol%)**
  - 83% yield
  - 99% ee
  - 74% yield
  - 98% ee
  - 84% yield
  - 96% ee
  - 65% yield
  - 96% ee

- **Et₃N (15 mol%)**
  - CH₂Cl₂, r.t.
  - 83% yield
  - 99% ee
  - 80% yield
  - >99% ee
  - 84% yield
  - >99% ee
  - 82% yield
  - >99% ee
  - 67% yield
  - 97% ee