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Synthesis of Phenylcyclopropanes from Allylic Alcohols

Significance: Charette and co-workers present an improved zinc-catalyzed Simmons–Smith reaction for the conversion of allylic ethers and styrenes into various phenylcyclopropanes in up to 94% yield and good diastereoselectivity.

Comment: The proposed mechanism for this reaction, which was reported earlier by this group, involves the generation of an iodo(phenyl)methyl-zinc carbenoid via double nucleophilic displacement between phenyl diazomethane and the catalyst XZnI.

**Proposed catalytic cycle:**

**Selected examples:**

- 83% yield, dr > 95:5
- 69% yield, dr = 57:43
- 66% yield, dr = 92:8
- 65% yield, dr = 95:5
- 28% yield, dr = 50:50
- 85% yield, dr = 88:12
- 72% yield, dr = 95:5
- 86% yield, dr = 73:27