Molybdenum Complex Catalyzed Z-Selective Cross-Metathesis

Selected examples:

Significance: Cross-metathesis with alkenyl halides is a highly challenging problem. The authors have developed a molybdenum alkylidene species that reacts with alkenyl halides to afford various haloalkenes with high Z-selectivities. The synthesis of biologically active compounds is also demonstrated.

Comment: Commercially available (Z)-1-bromo-2-fluoroethene can be used as a fluoride source, instead of vinyl fluoride or (Z)-1,2-difluoroethene, which are difficult to handle. The authors suggest that, for steric and electronic reasons, the reaction with (Z)-1-bromo-2-fluoroethene proceeds through intermediate I.