West Virginia University
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Enantioselective Synthesis of Modular Cyclopropane Equivalents and Applications as Highly Strained Building Blocks

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Cyclopropanone derivatives have long been considered unsustainable synthetic intermediates due to their extreme strain and important kinetic instability. In this work, we present the synthesis and application of sulfonylcyclopropanols, acting as stable yet powerful equivalents of the corresponding cyclopropanone derivatives under basic conditions. Their utility is demonstrated as substrates in the development of a variety of novel synthetic disconnections such as formal cycloadditions (ring expansion), organometallic additions and olefination processes, as well as ring-opening and deconstruction approaches. We have recently developed a simple enantioselective route to these compounds, which constitutes the first asymmetric synthesis of cyclopropenone equivalents and thus enables rapid access to a wide variety of enantioenriched building blocks. Both the electronic and steric nature of the sulfonyl moiety in these reagents were found to have a crucial impact on their rate of equilibration to cyclopropanone, highlighting their modular reactivity and their potential for widespread use in synthesis.

Students, meet the speaker after the seminar in a student/postdoc session from 5:45-6:15 pm

Date: Wed, Mar. 10, 2020
Time: 4:30-5:30 pm
Location: Virtual Seminar (Zoom)

https://wvu.zoom.us/j/95185081925?pwd=QTZETGxiYWFGZ2xZNC95Wk1JU2xtZz09