

[Paper #7 – “Asymmetric \[4 + 3\] Cycloadditions between Benzofuranyldiazoacetates and Dienes: Formal Synthesis of \(+\)-Fronodosin B” by J.P. Olson and H.M.L. Davies, *Org. Lett.*, 2008, 10\(4\), 573-576 \(DOI 10.1021/ol702844g\)](#)

Classroom discussion: Friday, April 4.

This paper blends together several chemical reactions and concepts that we have been studying this term. It also illustrates how a reaction (the divinylcyclopropane Cope rearrangement) that might have struck you as highly esoteric when we examined it in class can actually have practical value when some creative thinking is applied to it.

Prior to class:

1. Send me *three* non-overlapping questions about the paper that you would like to ask the rest of the class. Think about these carefully and craft them independently because I will put your questions in a hat and draw them out randomly to create our in-class discussion. I will also have you folks vote to decide the top 3 questions.
2. Look up or propose a mechanism for the “rhodium-catalyzed [4+3] cycloaddition.” Anyone who regularly scans a journal like *Organic Letters* quickly discovers that transition metal-catalyzed pericyclic reactions have become part of the standard bag-of-tricks used by organic chemists. However, many of these reactions are *formal*, rather than *true*, pericyclic processes. In other words, the overall transformation looks like a pericyclic reaction, but the mechanism is step-wise and does not involve a cyclic transition state.
3. Construct an explanation for as much of the spectral data for compound **9** as you can manage (bring this to class). Be on the lookout for errors in the Supporting Information. Also, remember that it can be helpful to look at spectra of structurally similar compounds when trying to assign data.