ORGANIC SEMINAR
Hutchison Hall 473

Friday, Sept. 9, 2016, 9:00 a.m.
University of Rochester
Department of Chemistry

"Choreographing cyclizations and fragmentations in radical cascades"

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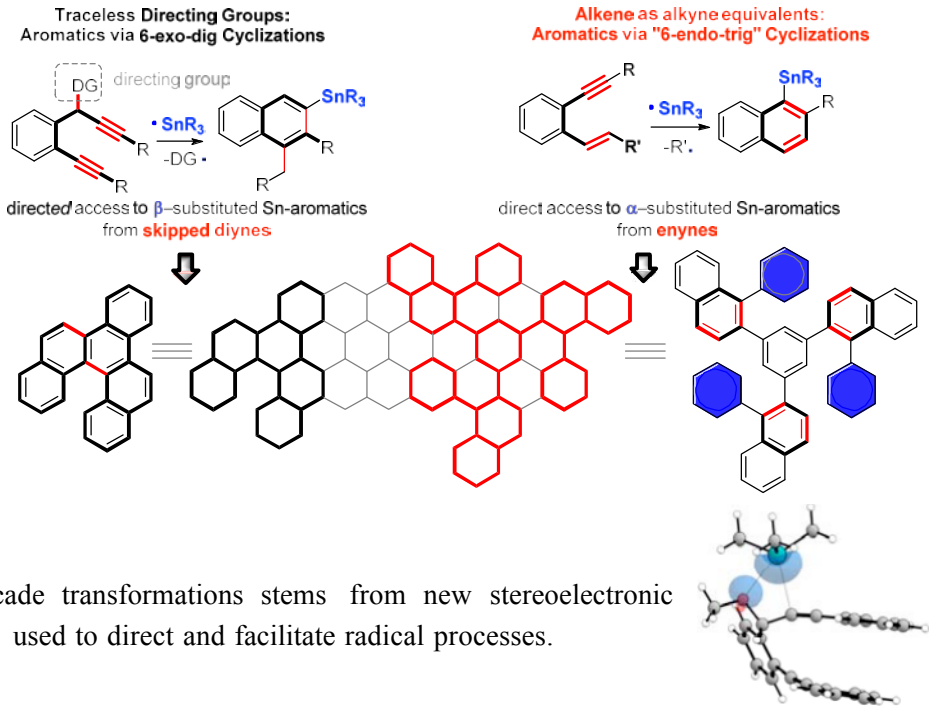
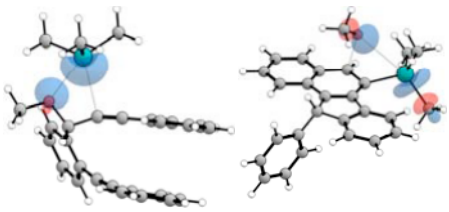
Recently, we had redefined the rules for utilizing the chemical potential of alkynes[1] in the formation of cyclic structures.[2] I will discuss applications of the new rules to the preparation of extended polyaromatics. Further synthetic opportunities arise from fusion of cyclization cascades with the application of traceless directing groups[3] and with the fragmentations that adjust the oxidation state of the product and allow the use of alkenes as synthetic equivalents of alkynes.[4]



Success of these cascade transformations stems from new stereoelectronic interactions that can be used to direct and facilitate radical processes.



(1) Alabugin, I. V.; Gold, B. *J. Org. Chem.*, **2013**, *78,* 7777.

(2) Alabugin, I. V.; Gilmore, K.; Manoharan, M. *J. Am. Chem. Soc.* **2011**, *133,* 12608. Alabugin, I. V.; Gilmore, K. *Chem. Commun.*, **2013**, *49*, 11246

(3) Pati, K.; dos Passos Gomes, G.; Harris, T.; Hughes, A.; Phan, H.; Banerjee, T.; Hanson, K.; Alabugin, I. V. *J. Am. Chem. Soc.* **2015**, *137*, 1165. Harris, T.; Gomes, G.; Clark, R. J.; Alabugin, I. V. *J. Org. Chem.*, **2016**, *81*, Pati, K.; Gomes, G.; Alabugin, I. V. *Angew. Chem. Int. Ed.,* **2016**, *55*, in print, DOI: 10.1002/ anie.201605799.

(4) Mohamed, R.; Mondal, S.; Gold, B.; Evoniuk, C. J.; Banerjee, T.; Hanson, K.; Alabugin, I. V. *J. Am. Chem. Soc.*, **2015**, *137*, 6335. Mohamed, R. K.; Mondal, S.; Guerrera, J. V.; Eaton, T.M.; Albrecht-Schmitt, T. E.; Shatruk, M.; Alabugin, I. V. *Angew. Chem. Int. Ed.,* **2016**, *55*, in print. DOI: 10.1002/anie.201606330

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