

NEW REACTIONS OF GERMYLENES WITH KETONES AND ASSESSMENT OF STUDIO GENERAL CHEMISTRY

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the degree of Doctor of Philosophy (Chemistry)
in The University of Michigan 2003

- Chapter I. Introduction**
- Chapter II. Conversion of Phenones to Conjugated Trienes Via
Germylene Cycloaddition**
- Chapter III. Germylene Reactions with Quinones**
- Chapter IV. Activation and Catalytic Partial Hydrogenation of
Benzophenone**
- Chapter V. Exploring Two Reactions of Ketones with
 $\text{Ge}[\text{CH}(\text{SiMe}_3)_2]_2$: CH and OH Insertion**

- Chapter VI. Development of Studio Chemistry**
- Chapter VII. Equilibrium Study in Studio General Chemistry**
- Chapter VIII. Student Attitudes Toward Studio Chemistry**

Intel Corporation:

2003: "Implementing studio instruction" \$150,000

2005: "Enhanced implementation of studio instruction" \$180,000

Gottfried, A. C.; Sweeder, R. D.; Bartolin, J. M.; Hessler, J. A.; Reynolds, B. P.; Stewart, I. C.; Coppola, B. P.; Banaszak Holl, M. M. "Design and Implementation of a Studio-based General Chemistry Course at the University of Michigan" *Journal of Chemical Education* (submitted).

July, 2004: "Studio Chemistry Evaluations at the University of Michigan: A Tale of Two Classes" at the 2004 Biennial Conference on Chemical Education; July 18, 2004 Amy C. Gottfried, Jessica A. Hessler, Benjamin P. Reynolds, Ryan D. Sweeder, Jeffrey M. Bartolin, Jessa Stuart, Wilbert J. McKeachie, Mark M. Banaszak Holl, Brian P. Coppola (invited).

March, 2003: "Studio 130: Design, Testing, and Implementation" Amy C. Gottfried (presenter), Jessica A. Hessler (presenter), Ryan D. Sweeder, Jeffrey M. Bartolin, Brian P. Coppola, Mark M. Banaszak Holl, Benjamin P. Reynolds, and Ian C. Stewart; 225th National Meeting, American Chemical Society, March, 2003, New Orleans, LA (invited).

March, 2003: "Studio 130: Evaluation" Coppola, B.; Banaszak Holl, M. M.; Gottfried, A. C.; Hessler, J. B.; Sweeder (presenter), R. D.; Barotlin, J. M., McKeachie, W. J.; Stewart, I.; 225th National Meeting, American Chemical Society, March, 2003, New Orleans, LA (invited).