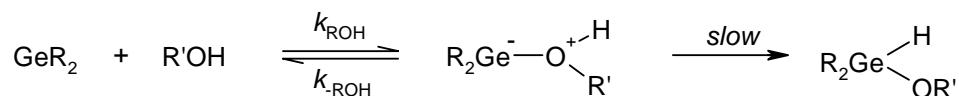


Direct Detection of Germylenes and the Kinetic Study of their Reactions with Alcohols and Ethers

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Germylenes are the germanium analogues of carbenes, and despite much interest in their chemistry over the past 2-3 decades, little quantitative data exist on their reactivity in solution. Like carbenes, and the silicon analogues (silylene), germylenes undergo O-H insertion reactions with alcohols. The reaction proceeds via the initial formation of a Lewis acid-base complex between germylene and alcohol, which proceeds to the final product in a subsequent slow step:



The goal of this work was to examine the effects of substituent on both the alcohol and at germanium on the kinetics and thermodynamics of this process. Data for the reactions of four reactive germylenes (GeMe_2 , GeMePh , GePh_2 , and GeMes_2) with methanol (MeOH), *tert*-butanol, and tetrahydrofuran (THF) will be presented. The germylenes have been generated and monitored by nanosecond laser flash photolysis, using compounds **1-4** as precursors. These compounds are known to extrude the corresponding germylene derivative very cleanly and with high efficiency ($\Phi > 0.5$).

