CREATING TOOLS FOR SYNTHESIS FROM MECHANISTIC FOUNDATIONS

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This presentation will give an overview of our group's recent research activities at the interface of synthetic organic, mechanistic chemistry and homogeneous catalysis. The emphasis will be on novel strategies that were recently identified in our laboratory to simplify and accelerate the synthesis of structurally diverse molecules. These include, for example, the (i) use of organogermanes as orthogonal coupling partners in Csp2 and Csp3 space, (ii) metalloradical-catalyzed stereomutations, (iii) late-stage alkylations & (iv) routes to synthesize previously inaccessible fluorinated motifs. The development, scope and mechanistic underpinnings (based on experimental & computational/data science studies) of these novel processes will be discussed.