

Preface

Until recently, our understanding of the chemistry resulting from the combination of Lewis acids and bases had not evolved much since Lewis' time. In large part, the formation of Lewis acid–base adducts drew little interest as these systems were, with a few notable exceptions, perceived as thermodynamic sinks. However, in 2006 we learned that certain combinations of Lewis acids and Lewis bases could co-exist in solution and provide the possibility of new, synergistic reactions in which both reagents participate in the activation of H_2 . This “archetypical” reaction was first demonstrated with Lewis pairs in which adduct formation was sterically frustrated. Subsequently we learned that such “frustrated Lewis pairs” (FLPs) could also be derived from weak electronic attractions between the acid and base and that this notion was not limited to group 13/15 combinations.

The discovery of this seemingly simple concept led to the unprecedented application of FLPs in metal-free catalytic hydrogenations. Although the early developments were summarized in our 2010 review in *Angewandte Chemie*, the area has grown rapidly since then. Indeed, a number of creative and insightful contributions have broadened the range of FLP systems and have led to dramatic developments, including the activation of a variety of small molecules such as alkenes, alkynes, CO_2 , N_2O , and NO , among others. Theoretical studies have provided insight and understanding of this evolving area and exciting applications of FLPs in synthetic chemistry and catalysis continue to emerge.

These two volumes are a compilation of state-of-the-art research concerning “FLPs” as of mid-2012. Over 20 researchers from around the globe have contributed chapters, detailing their inventive and astute contributions to this new and exciting area of chemistry. Their work covers a broad range of studies including synthetic chemistry, theoretical treatments, spectroscopic examinations, and catalytic applications. The breadth demonstrates the broad impact this work has had and, furthermore, points to the enormous potential for the future.

It has been our great pleasure to have acted as editors for these volumes. It is our hope that this collection will not only highlight the amazing growth of this area in only a few years but also influence others to take up the task of exploring or exploiting FLPs in their own chemistry.

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Frustrated Lewis Pairs II

Expanding the Scope

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