

Enhancing the reactivity of p-block compounds by structural constraints and electromerism

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Over the past few decades, the molecular main-group chemistry has seen a renaissance. This could be attributed to the better understanding of how to stabilize main-group elements in low-valent oxidation states. The low-valent main group compounds are interesting due to their ability to perform small molecule activation by oxidative addition reactions. However, in most of the cases after the oxidative addition of the substrate, the following reductive elimination is not feasible due to high thermodynamic stability of the product.^[1] One of the potential solutions to this problem is developing structurally constrained p-block compounds in native oxidation state with an increased reactivity. Another approach is employing redox active ligands with p-block elements and utilizing the redox recycling.^[2] The seminar will be focused on:

1. The stimuli responsive nature of mixed-valent silicon compounds.^[3]
2. Electromerism and structural constraints in main group compounds using calix[4]pyrrolato ligands.^[4, 5]

References

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