

## Synthesis of Highly Substituted Rh(I) and Ir(I) Cyclopentadienyl Half Sandwich Complexes via $\beta$ -carbon Elimination

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The cyclopentadienyl (Cp) ligand and its pentamethylsubstituted derivatives are of fundamental importance in organometallic chemistry. Cp complexes are known for most transition metals, and have been widely applied in numerous catalytic processes.<sup>1</sup> Experience in our research group has shown that the preparation of some highly substituted Cp derivatives can be extremely difficult with existing methods.

We present here a novel method for the synthesis of highly substituted Rh(I) and Ir(I) Cp complexes, employing a  $\beta$ -carbon elimination reaction as the key step. The newly formed complexes are obtained in high yields, and can be directly subjected to further catalytic transformations without any purification. This approach has enabled the synthesis of previously inaccessible ligand frameworks.

