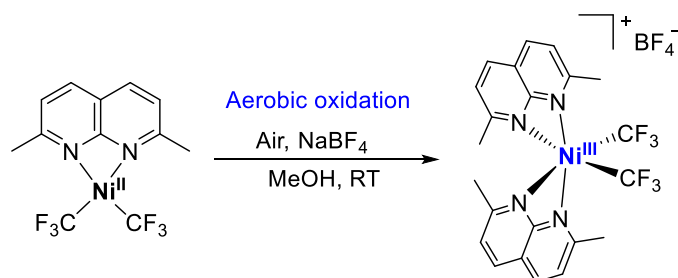


## Aerobic oxidative reactivity of nickel complexes supported by naphthyridine ligands

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Our group's longstanding interest is in the development of new ligand platform for selective bond activation. We focused our attention on naphthyridine as a versatile fragment for building up both binucleating and mononucleating ligands. Naphthyridine is well-known for its ability to bridge between two metals forming close metal-metal distances, which gave us inspiration to use it for selective formation of heterobimetallic complexes for bimetallic cooperative bond activation.<sup>[1]</sup>



While studying coordination chemistry of naphthyridines with Ni, we discovered that simple and substituted naphthyridines tend to form mononuclear Ni complexes.<sup>[2]</sup> when bis-trifluoromethyl Ni precursor was used. Moreover, these complexes could be easily oxidized by air to give rare examples of aerobically formed, stable Ni(III) bis-trifluoromethyl complexes. Furthermore, we then studied their reactivity in light-induced radical C-H bond trifluoromethylation<sup>[3]</sup>.

In this talk, we will discuss more detailed studies of the aerobic reactivity of organometallic Ni complexes and their application of aerobic oxidation of phosphines, sulfides, alcohols and stilbenes using molecular oxygen as a terminal oxidant.

References:

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