Motivation:

Metal–metal bonding has inspired scientists for many decades and a lot of this fascination and interest has recently shifted towards unsupported metal–metal linkages. Unsupported RE–TM bonds (RE = rare earth, TM = transition metal) are rare and especially important with regard to the general understanding of RE–TM bonding. RE–TM bonding determines, for instance, the nature/characteristics of the corresponding intermetallic compounds of which many play an important role in our daily life. RE–TM intermetallic compounds are in high-performance permanent magnets, hydrogen storage material and car batteries. Furthermore, RE–TM bonds are strongly polar and mixed-metal entities containing metal atoms (or cluster subunits) with significantly different electronic properties offer the potential to meet chemical challenges like the rational design of higher aggregated systems.

Towards RE-TM Bonds:

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References: