

Heterometallic Complexes Containing the Ni^{II}-Ln^{III}-Ni^{II} Moiety: Structures and Magnetic Properties

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Supporting Information

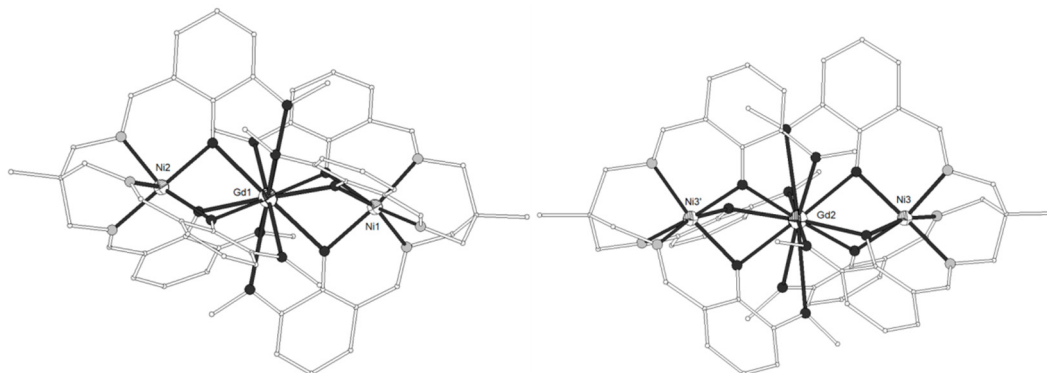


Figure S1. The cations $[(\text{NiL}^3)_2\text{Gd}]^+$ of the two crystallographically independent molecules in the structure of **16**. Primed atoms are generated by symmetry: $(') -x, y, 1.5 - z$. Color code: Gd large octant, Ni small octant, N light grey, O dark grey, C open small. Ref.21: J.-P. Costes, T. Yamaguchi, M. Kojima, L. Vendier, *Inorg. Chem.* 48 (2009) 5555–5561.

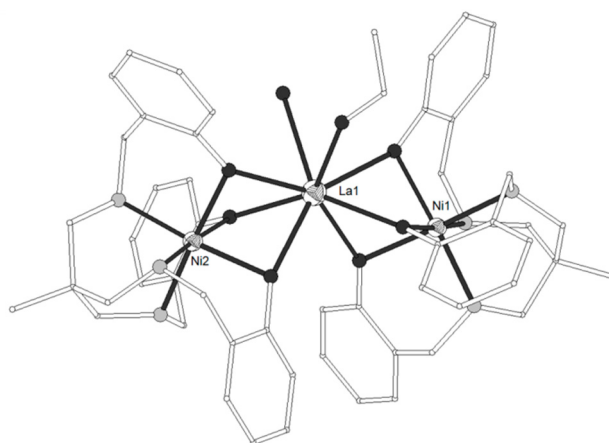


Figure S2. The molecular structure of the cation $[(\text{NiL}^5)_2\text{La}(\text{solv})_x]^+$ in complex **21**. Color code as in Figure S1. Ref.23: Z. Xu, P. W. Read, D. E. Hibbs, M. B. Hursthouse, K. M. Abdul Malik, B. O. Patrick, S. J. Rettig, M. Seid, D. A. Summers, M. Pink, R. C. Thompson, C. Orvig, *Inorg. Chem.* 39 (2000) 508–516.

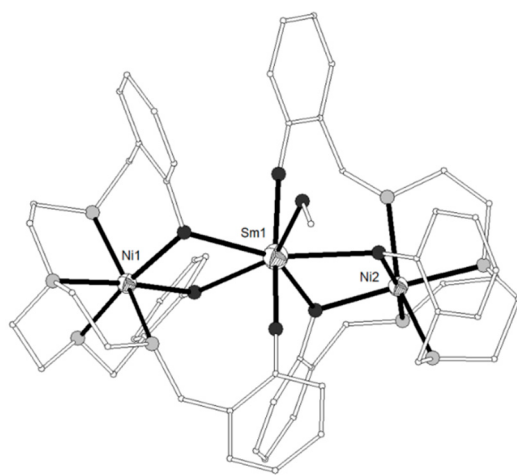


Figure S3. The molecular structure of the cation $[(\text{NiL}^6)_2\text{Sm}(\text{MeOH})]^+$ in complex **32**. Color code as in Figure S1. Ref.24: S. R. Bayly, Z. Xu, B. O. Patrick, S. J. Rettig, M. Pink, R. C. Thompson, C. Orvig, *Inorg. Chem.* 42 (2003) 1576–1583.

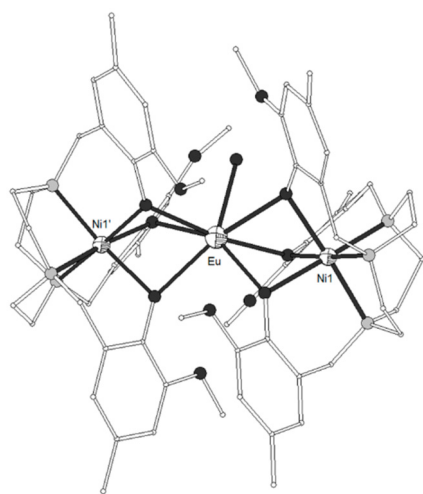


Figure S4. The molecular structure of the cation $[(\text{NiL}^9)_2\text{Eu}(\text{H}_2\text{O})]^+$ in complex **62**. Primed atoms are generated by symmetry ($'$) $1 - x, y, 0.5 - z$. Color code as in Figure S1. Ref.28: P. Comba, M. Enders, M. Großhauser, M. Hiller, D. Müller, H. Wadepohl, *Dalton Trans.* 46 (2017) 138–149.

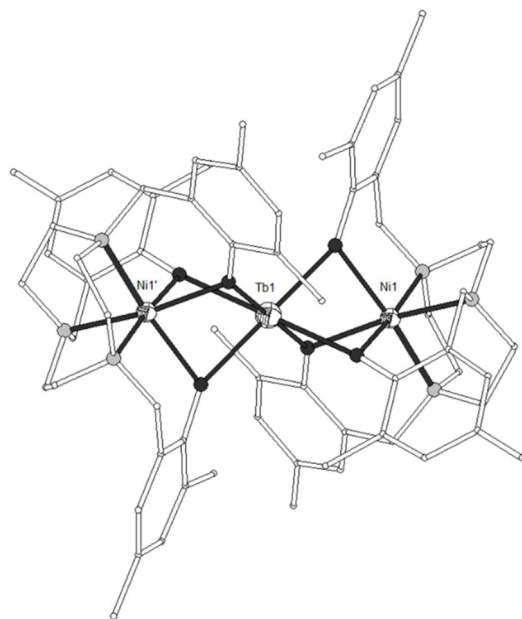


Figure S5. The molecular structure of the cation $[(\text{NiL}^{10})_2\text{Tb}]^+$ in complex **70**. Primed atoms are generated by symmetry ($'$) $-x, 1 - y, -z$. Color code as in Figure S1. Ref. 29: H.-R. Wen, J.-L. Zhang, F.-Y. Liang, K. Yang, S.-J. Liu, J.-S. Liao, C.-M. Liu, New J. Chem. 43 (2019) 4067–4074.

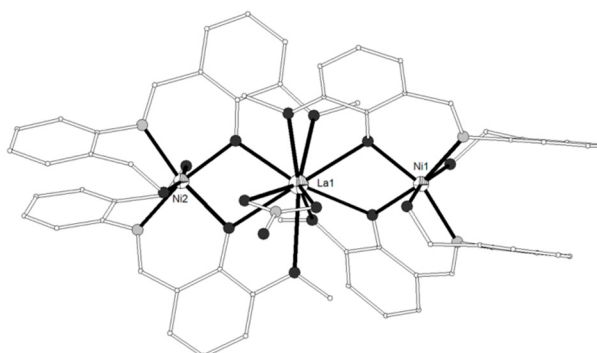


Figure S6. The molecular structure of the cation $[\{\text{Ni}(\text{HL}^{12})_2\}_2\text{La}(\text{NO}_3)]^{2+}$ in complex **75**. Color code as in Figure S1. Ref. 32: N. Ahmed, C. Das, S. Vaidya, A. Kumar Srivastava, S.K. Langley, K.S. Murray, M. Shanmugam, Dalton Trans. 43 (2014) 17375–17384.

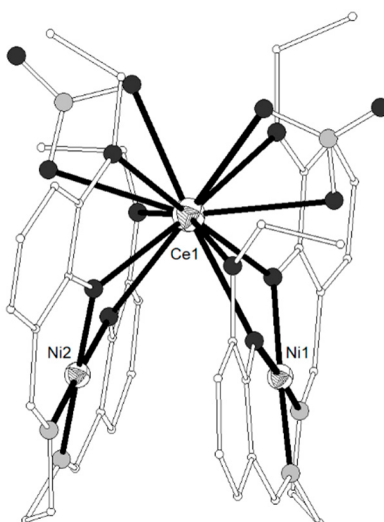


Figure S7. The molecular structure of the cation $[(\text{NiL}^{15})_2\text{Ce}(\text{NO}_3)_2]^+$ in complex **85**. Color code as in Figure S1. Ref. 35: Y. Sui, R.-H. Hu, D.-S. Liu, Q. Wu, *Inorg. Chem. Comm.* 14 (2011) 396–398.

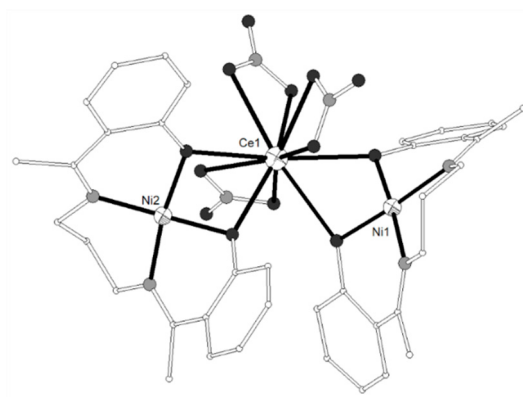


Figure S8. The molecular structure of complex $[(\text{NiL}^{18})_2\text{Ce}(\text{NO}_3)_3]$ (**91**). Color code as in Figure S1. Ref. 39: S. Ghosh, A. Ghosh, *Inorg. Chim. Acta* 442 (2016) 64–69.

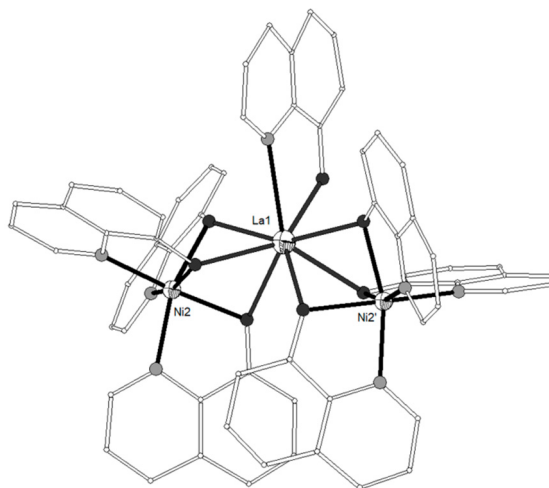


Figure S11. The molecular structure of complex $[(\text{Ni}(\text{L}^{21})_3)_2\text{La}(\text{L}^{21})]$, **98**. Primed atoms are generated by symmetry: (') $1 - x, y, 0.5 - z$. Color code as in Figure S1. Ref. 42: G. B. Deacon, C. M. Forsyth, P. C. Junk, S. G. Leary, *New J. Chem.* 30 (2006) 592–596.

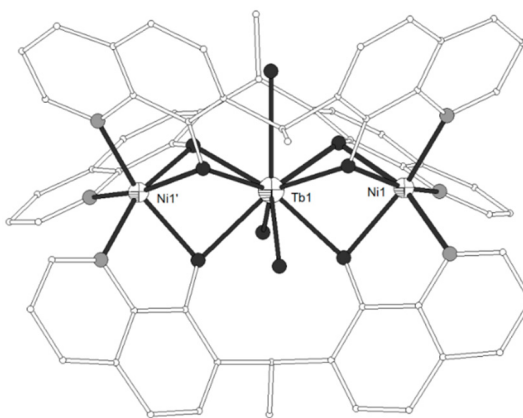


Figure S12. The molecular structure of complex $[(\text{Ni}(\text{L}^{22})_{1.5})_2\text{Tb}(\text{OH})]$, **100**. Primed atoms are generated by symmetry: (') $-x + y, 1 - x, 0.5 - z$. Color code as in Figure S1. Ref. 43: Y. Zhu, F. Luo, Y.-M. Song, X.-F. Feng, M.-B. Luo, Z.-W. Liao, G.-M. Sun, X.-Z. Tian, Z.-J. Yuan, *Cryst. Growth Des.* 12 (2012) 2158–2161.

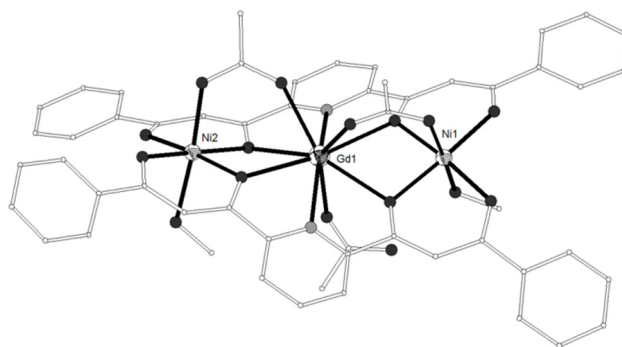


Figure S13. The molecular structure of complex $[(\text{NiL}^{25})_2\text{Gd}(\text{O}_2\text{CMe})_3(\text{MeOH})_2]$ **127**. Color code as in Figure S1. Ref. 46: T.N. Trieu, M.H. Nguyen, U. Abram, H.H. Nguyen, Z. Anorg. Allg. Chem. 641 (2015) 863–870.

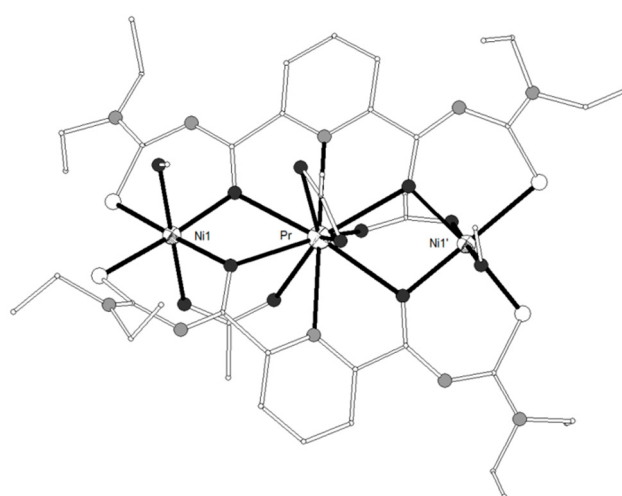


Figure S14. The molecular structure of complex $[(\text{NiL}^{26})_2\text{Pr}(\text{O}_2\text{CMe})_3(\text{MeOH})_2]$ **131**. Primed atoms are generated by symmetry: (') $-x, y, 0.5 - z$. Color code: Pr large octant, Ni small octant, N light grey, O dark grey, C open small, S open large. Ref. 47: H.H. Nguyen, J.J. Jegathesh, A. Takiden, D. Hauenstein, C.T. Pham, C.D. Le, U. Abram, Dalton Trans. 45 (2016) 10771–10779.

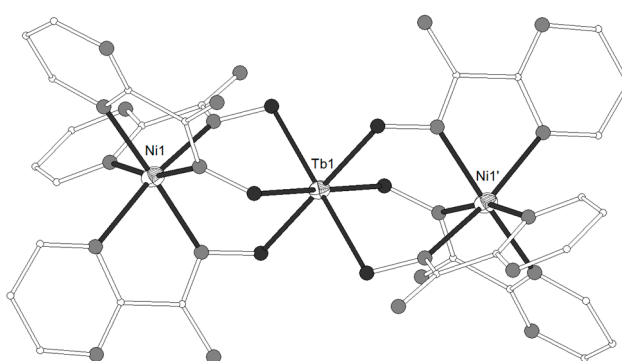


Figure S15. The molecular structure of the cation complex $[\{\text{Ni}(\text{L}^{28})_3\}_2\text{Tb}]^+$ **140**. Primed atoms are generated by symmetry: (') $1 - x, -y, 1 - z$. Color code as in Figure S1. Ref. 49: C. Kalogridis, M.A. Palacios, A. Rodríguez-Diéguez, A.J. Mota, D. Choquesillo-Lazarte, E.K. Brechin, E. Colacio, Eur. J. Inorg. Chem. (2011) 5225–5232.

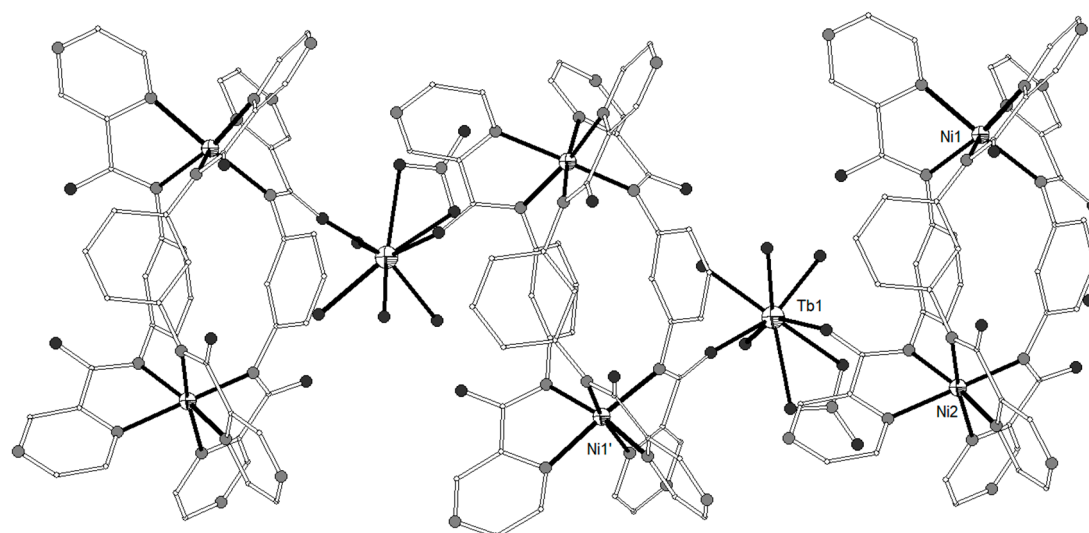


Figure S16. Part of the 1D structure of **168**. Primed atom is generated by symmetry ($'$) $x, 0.5 - y, -0.5 + z$. Color code as in Figure S1. Ref. 59: M.A. Palacios, J. Morlieras, J.M. Herrera, A.J. Mota, E.K. Brechin, S. Triki, E. Colacio, Dalton Trans. 46 (2017) 10469–10483.