

**A controlled iso-specific polymerization of 2-vinylpyridine catalyzed by
arylamide-ligated rare-earth metal aminobenzyl complexes**

Min Li,^{a,†} Chaopan Wang,^{a,†} Jue Chen,^c Zhiyong Guo,^a Zehuai Mou,^a and Yunjie

Luo^{*,a,b}

^a School of Material Science and Chemical Engineering, Ningbo University, Ningbo
315211, P. R. China

^b State Key Laboratory of Polymer Physics and Chemistry, Changchun Institute of
Applied Chemistry, Chinese Academy of Sciences, Changchun 130022, P. R. China

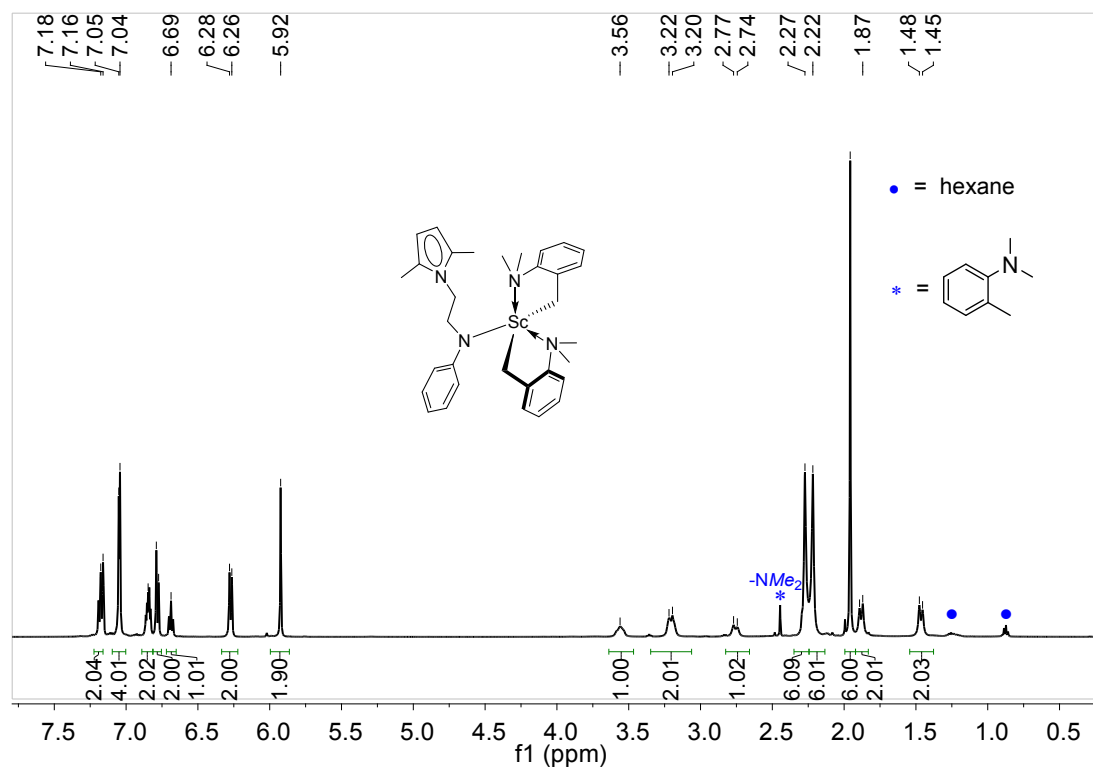
^c School of Biological and Chemical Engineering, Ningbo Institute of Technology,
Zhejiang University, Ningbo 315100, P. R. China

Corresponding author: E-mail: luoyunjie@nbu.edu.cn

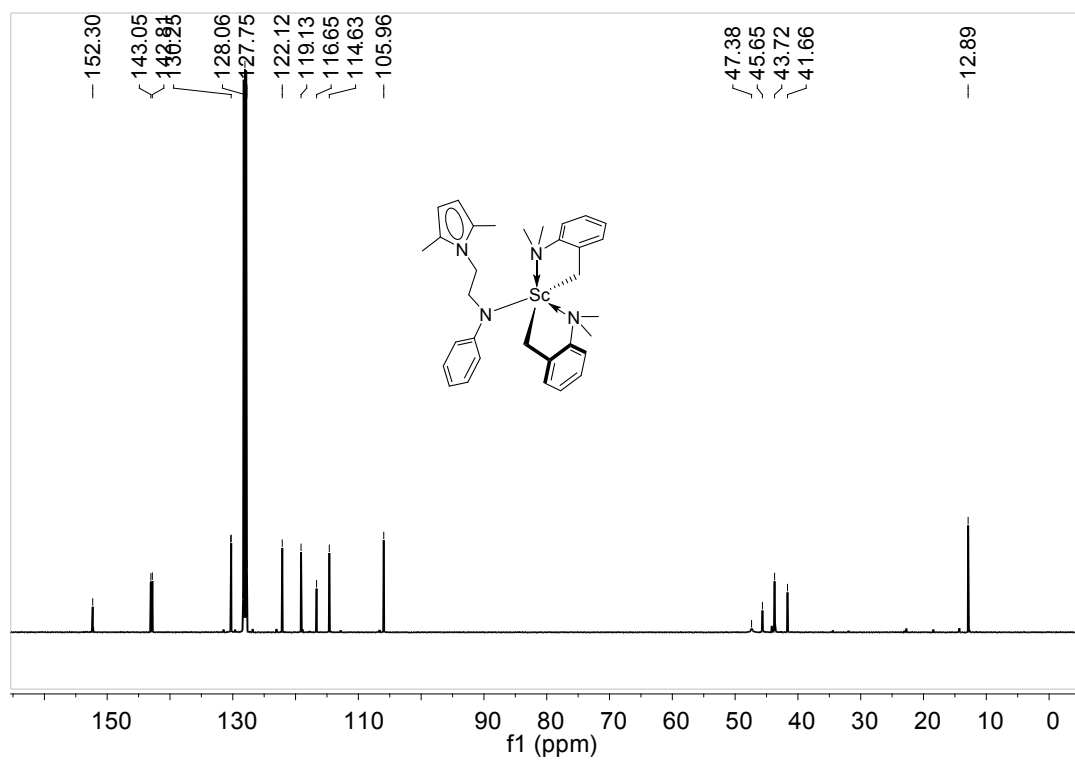
[†] Min Li and Chaopan Wang contributed equally to this work

Table of Contents

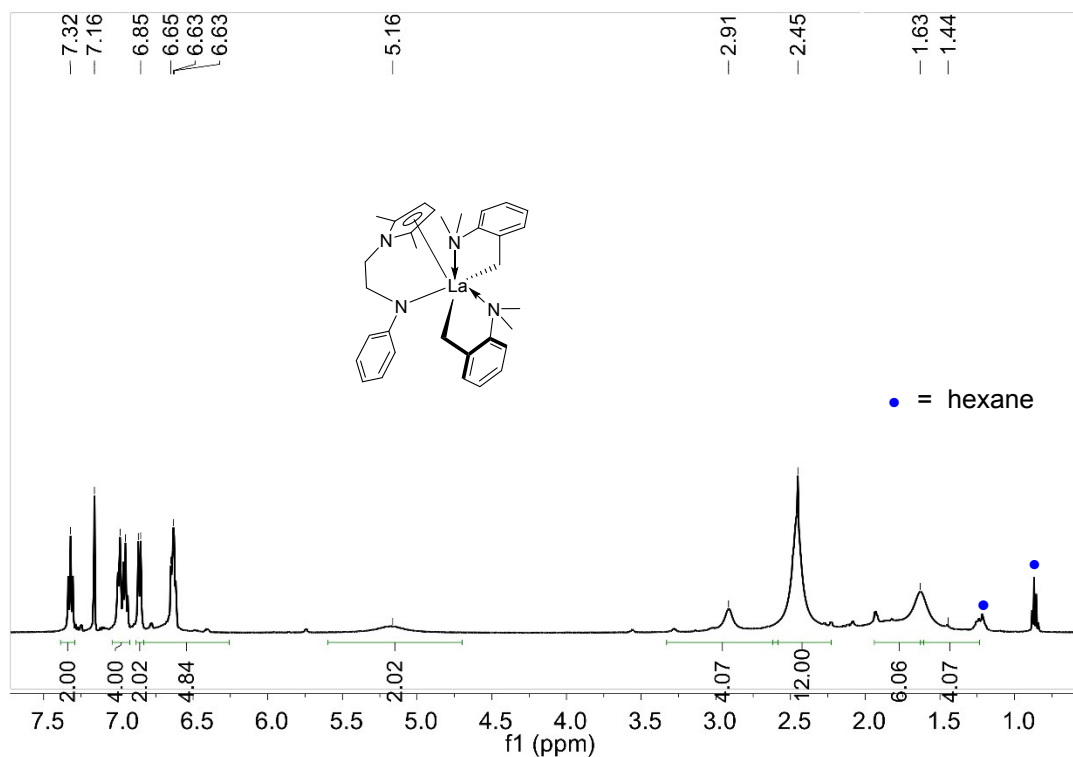
SFig. 1. ¹H NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)Sc(CH₂C₆H₄NMe₂-o)₂ (**1**)
SFig. 2. ¹³C NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)Sc(CH₂C₆H₄NMe₂-o)₂ (**1**)
SFig. 3. ¹H NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)La(CH₂C₆H₄NMe₂-o)₂ (**2**)
SFig. 4. ¹³C NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)La(CH₂C₆H₄NMe₂-o)₂ (**2**)
SFig. 5. ¹H NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)Lu(CH₂C₆H₄NMe₂-o)₂ (**3**)
SFig. 6. ¹³C NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)Lu(CH₂C₆H₄NMe₂-o)₂ (**3**)
SFig. 7. ¹H NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)₂Y(CH₂C₆H₄NMe₂-o) (**4**)
SFig. 8. ¹³C NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)₂Y(CH₂C₆H₄NMe₂-o) (**4**)
SFig. 9. ¹H NMR spectrum of (2,5-Me₂C₄H₂NSiMe₂NC₆H₅)Lu(CH₂C₆H₄NMe₂-o)₂ (**5**)
SFig. 10. ¹³C NMR spectrum of (2,5-Me₂C₄H₂NSiMe₂NC₆H₅)Lu(CH₂C₆H₄NMe₂-o)₂ (**5**)
SFig. 11. ¹H NMR spectrum of (2,5-Me₂C₄H₂NSiMe₂NC₆H₅)Y(CH₂C₆H₄NMe₂-o)₂ (**6**)
SFig. 12. ¹³C NMR spectrum of (2,5-Me₂C₄H₂NSiMe₂NC₆H₅)Y(CH₂C₆H₄NMe₂-o)₂ (**6**)
SFig. 13. GPC curve of representative polymer
SFig. 14–16. Selected microstructure analysis of P2VP



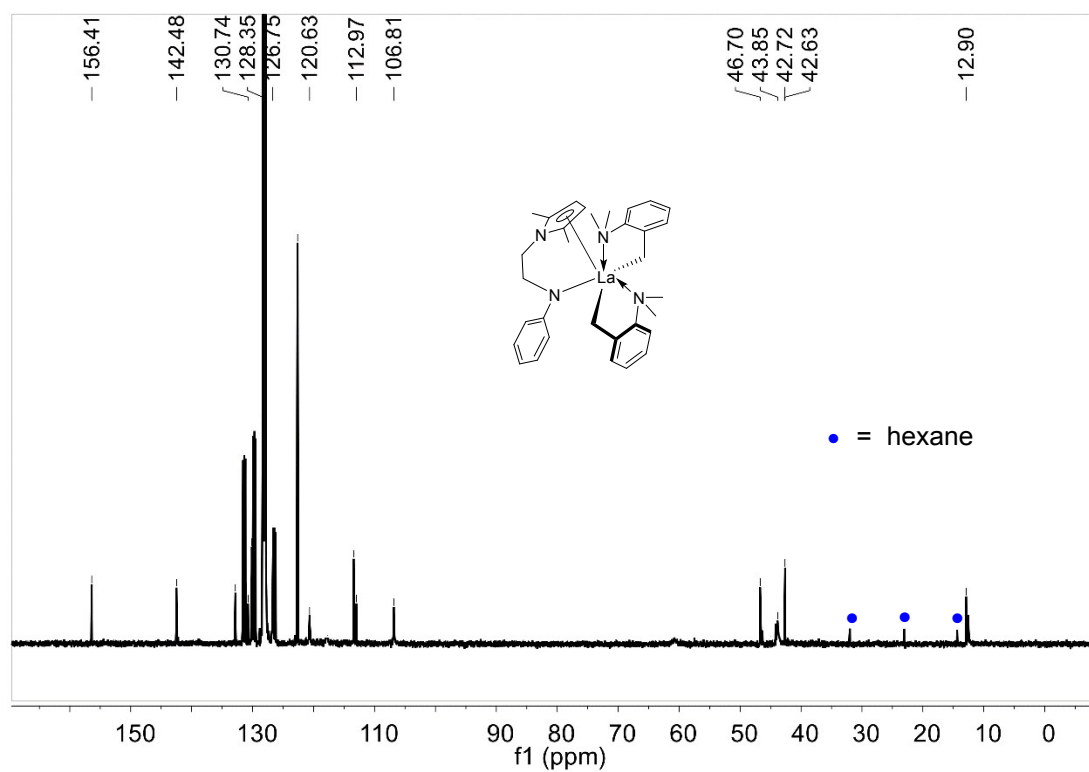
SFig. 1 ¹H NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)Sc(CH₂C₆H₄NMe₂-o)₂ (**1**)



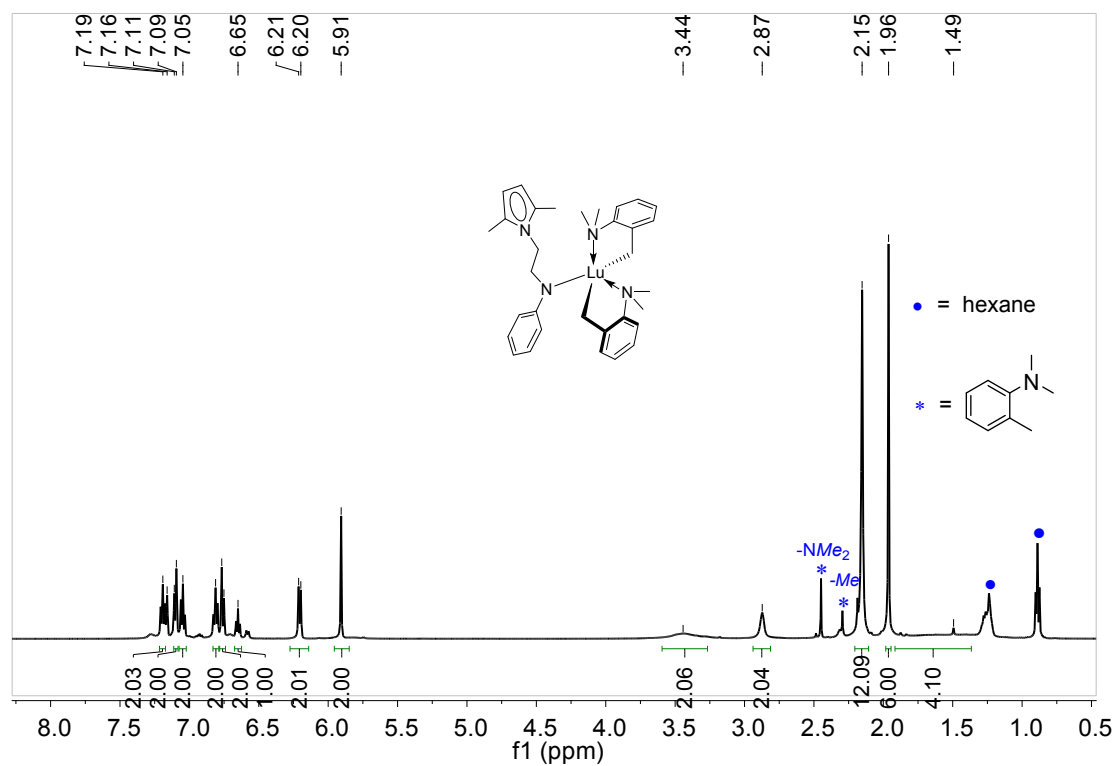
SFig. 2 ¹³C NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)Sc(CH₂C₆H₄NMe₂-o)₂ (**1**)



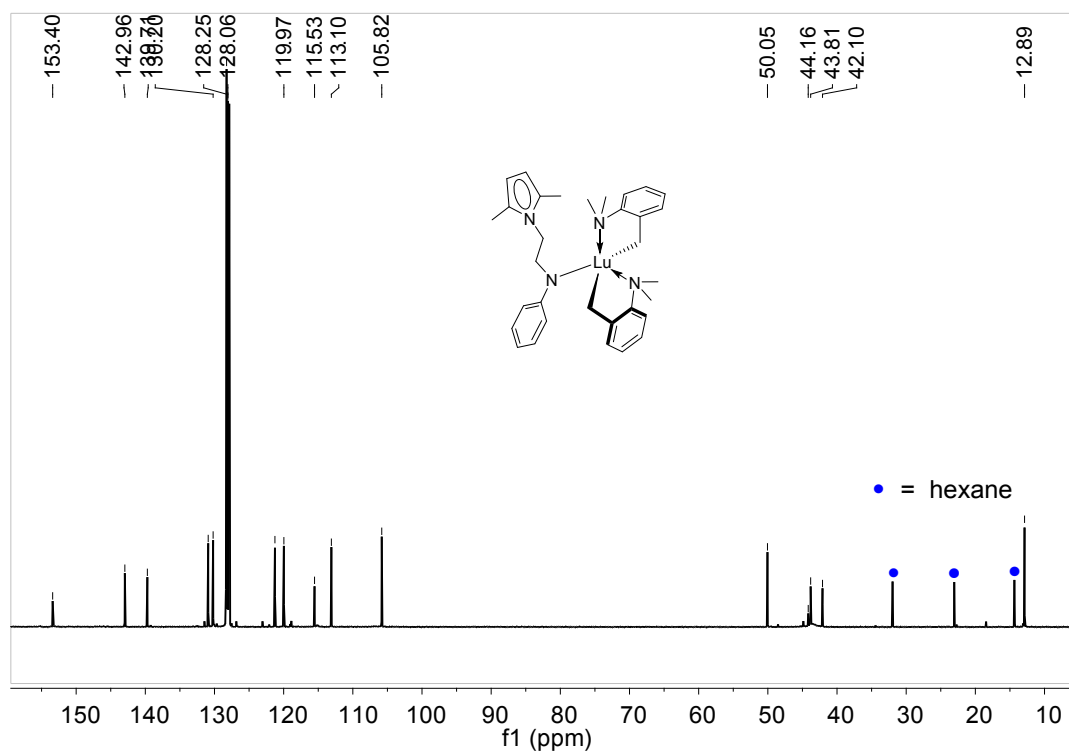
SFig. 3 ¹H NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)La(CH₂C₆H₄NMe₂-*o*)₂ (2)



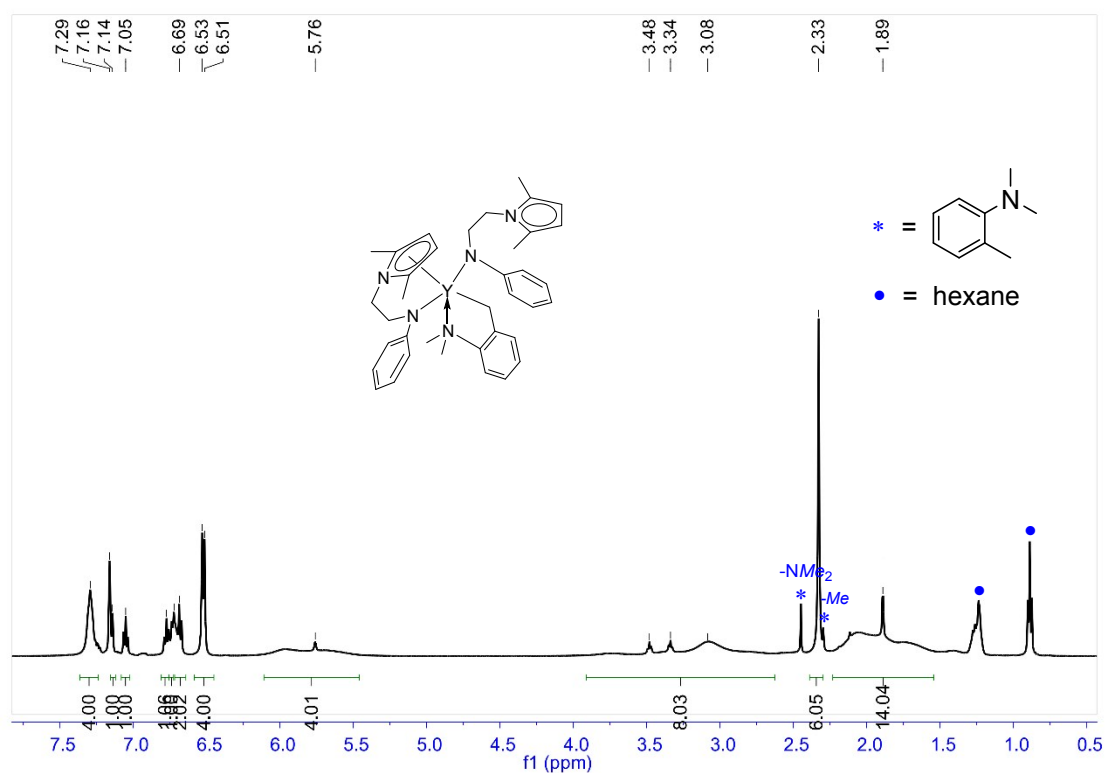
SFig. 4 ¹³C NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)La(CH₂C₆H₄NMe₂-*o*)₂ (2)



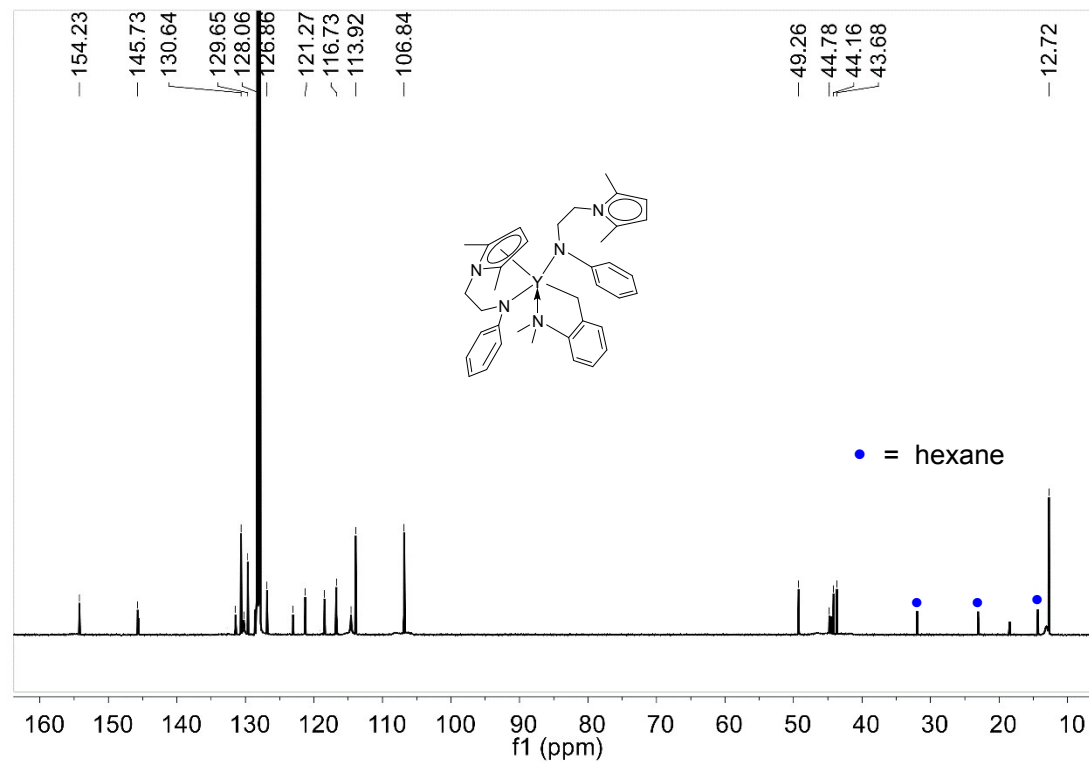
SFig. 5 ¹H NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)Lu(CH₂C₆H₄NMe₂-*o*)₂ (**3**)



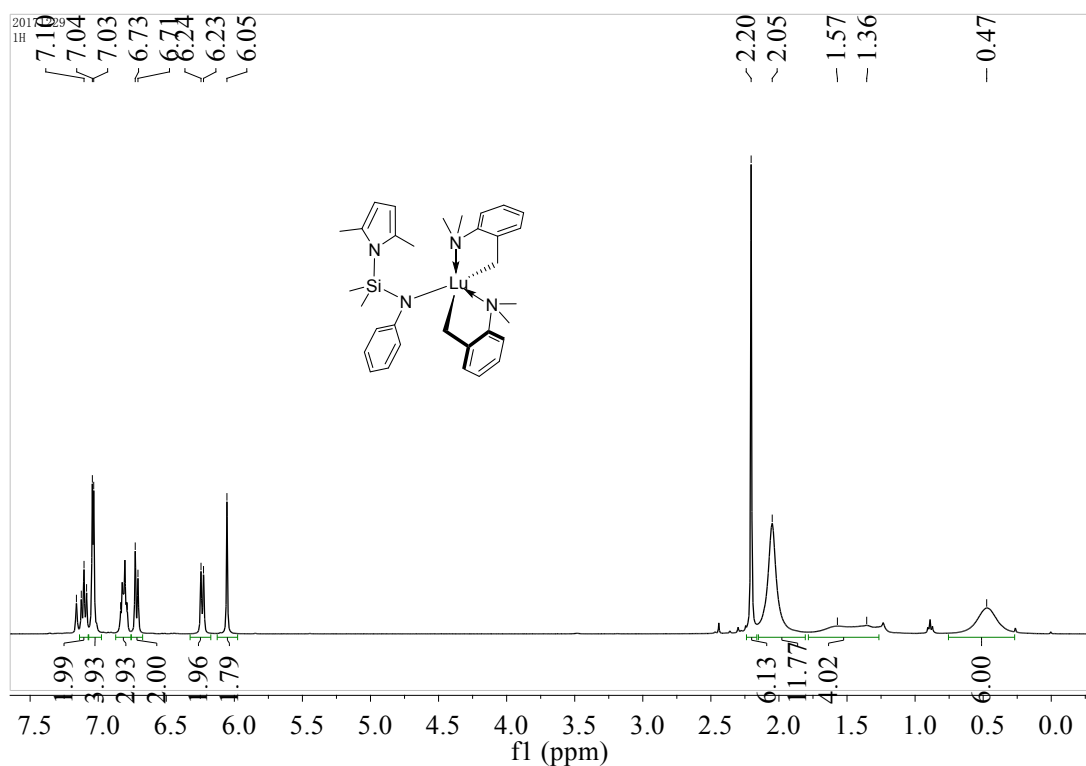
SFig. 6 ¹³C NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)Lu(CH₂C₆H₄NMe₂-*o*)₂ (**3**)



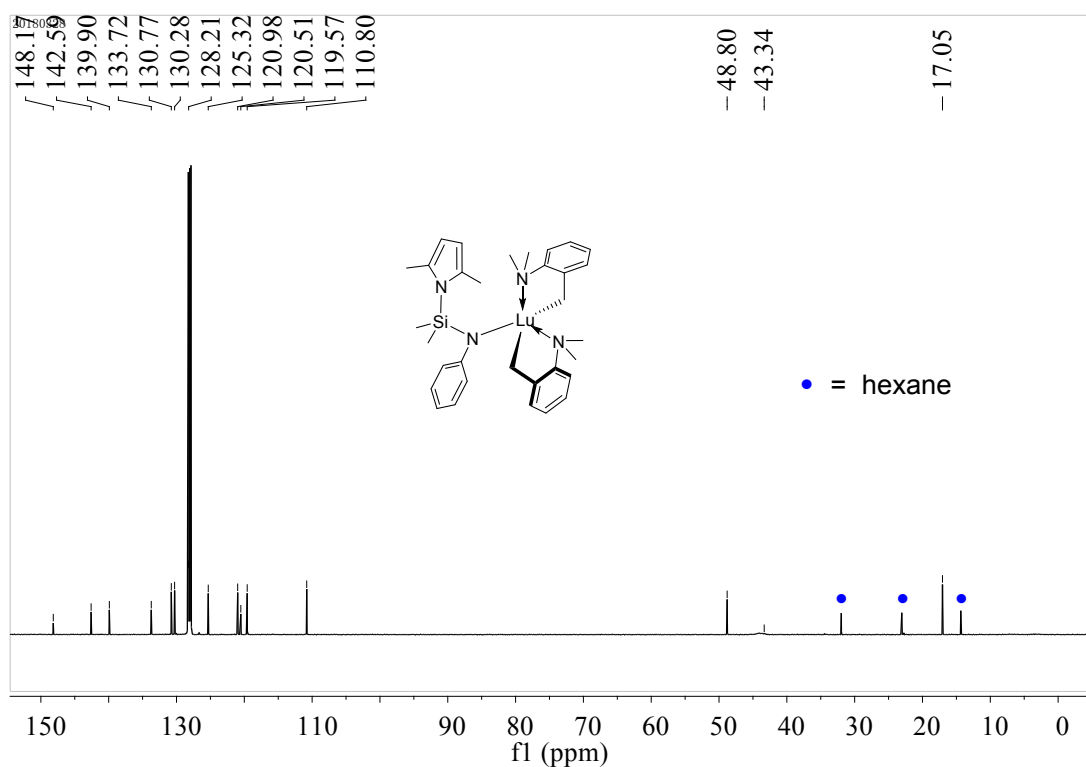
SFig. 7 ¹³C NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)₂Y(CH₂C₆H₄NMe₂-*o*) (4)



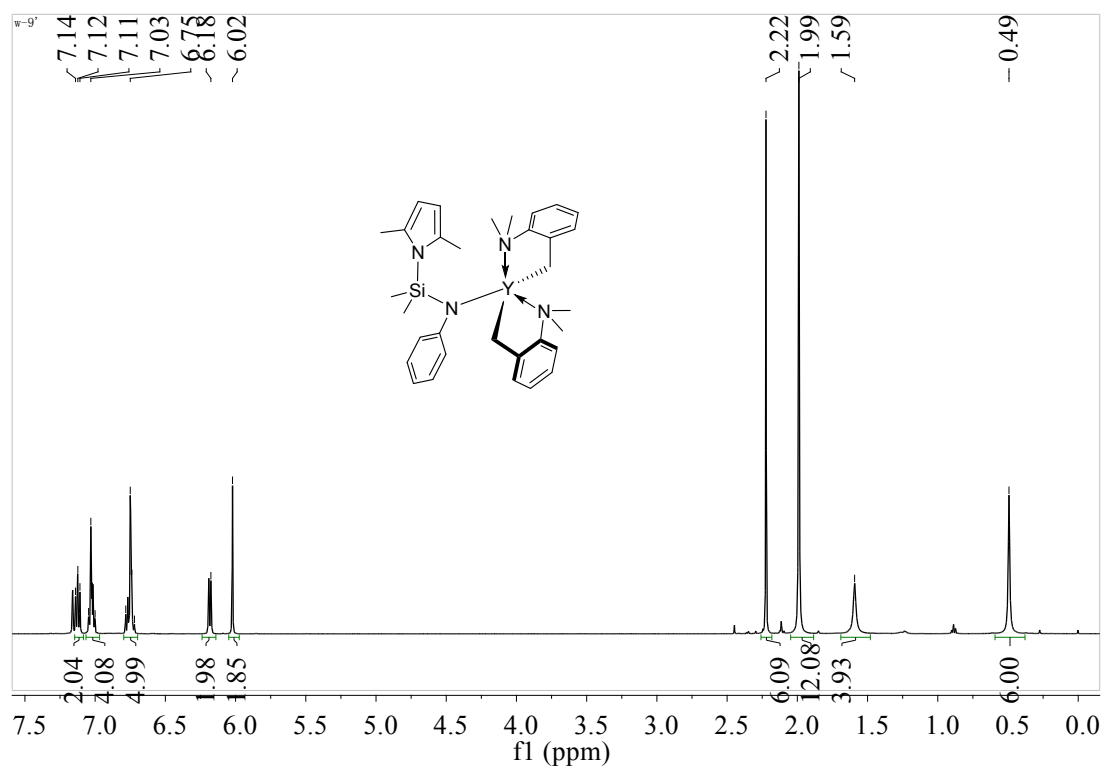
SFig. 8 ¹³C NMR spectrum of (2,5-Me₂C₄H₂NCH₂CH₂NC₆H₅)₂Y(CH₂C₆H₄NMe₂-*o*) (4)



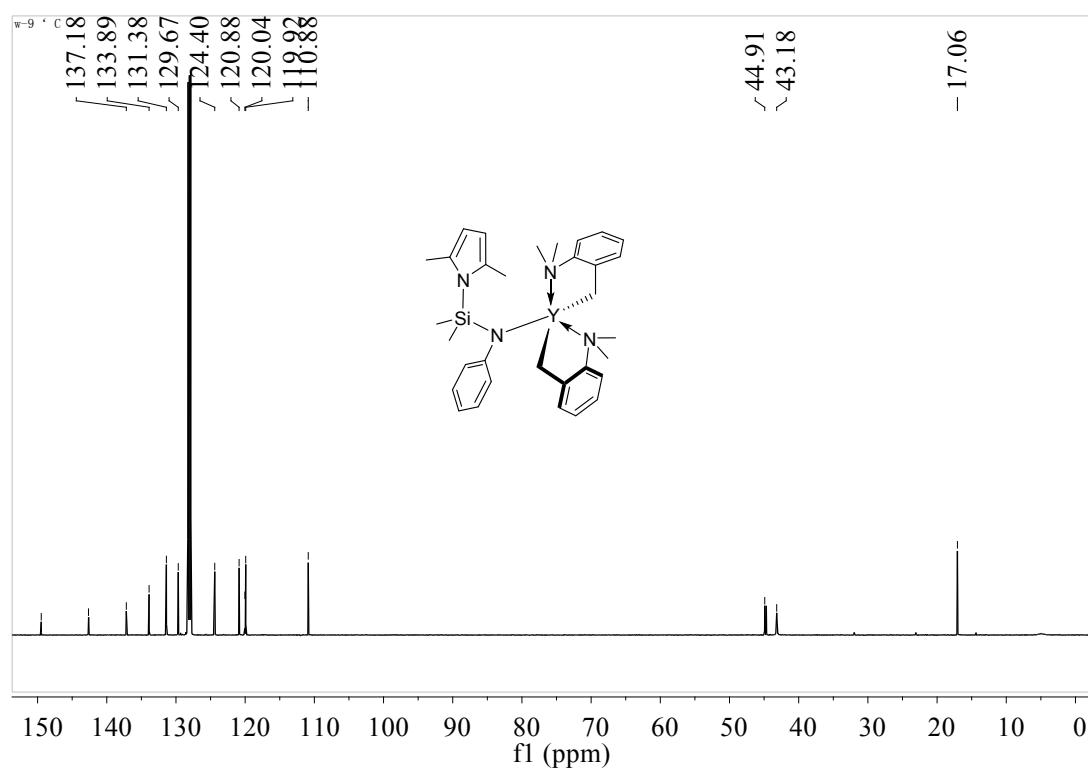
SFig. 9 ¹H NMR spectrum of (2,5-Me₂C₄H₂NSiMe₂NC₆H₅)Lu(CH₂C₆H₄NMe₂-*o*)₂ (**5**)



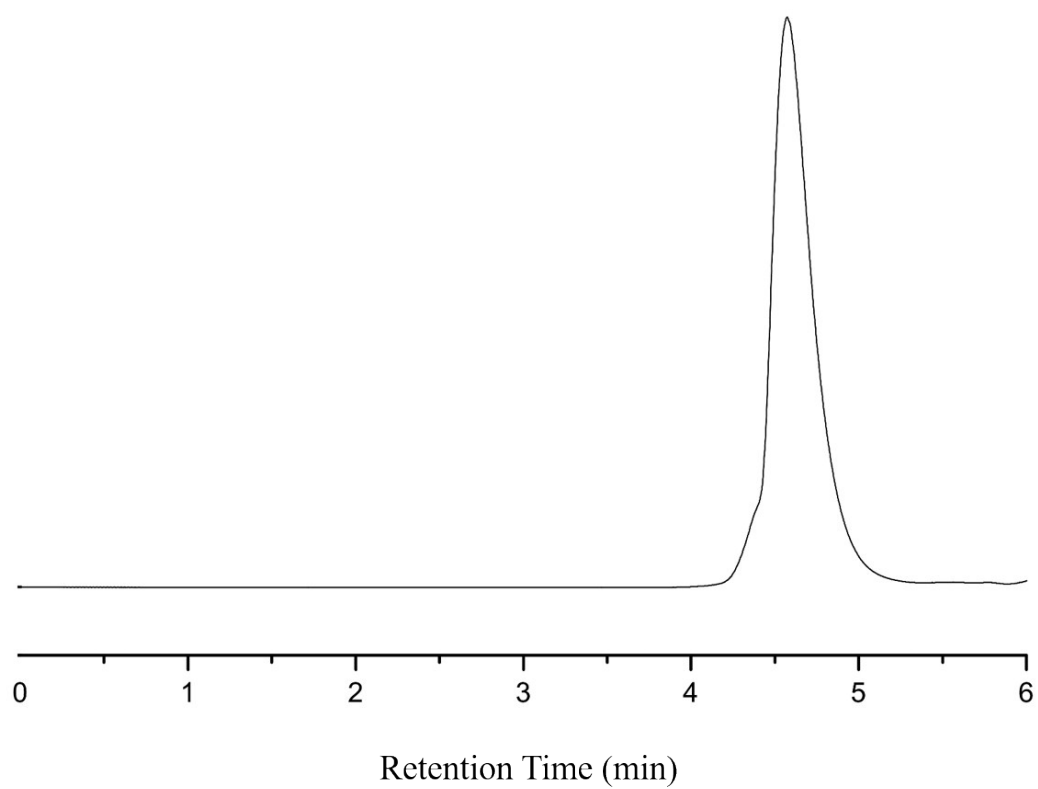
SFig. 10 ¹³C NMR spectrum of (2,5-Me₂C₄H₂NSiMe₂NC₆H₅)Lu(CH₂C₆H₄NMe₂-*o*)₂ (**5**)



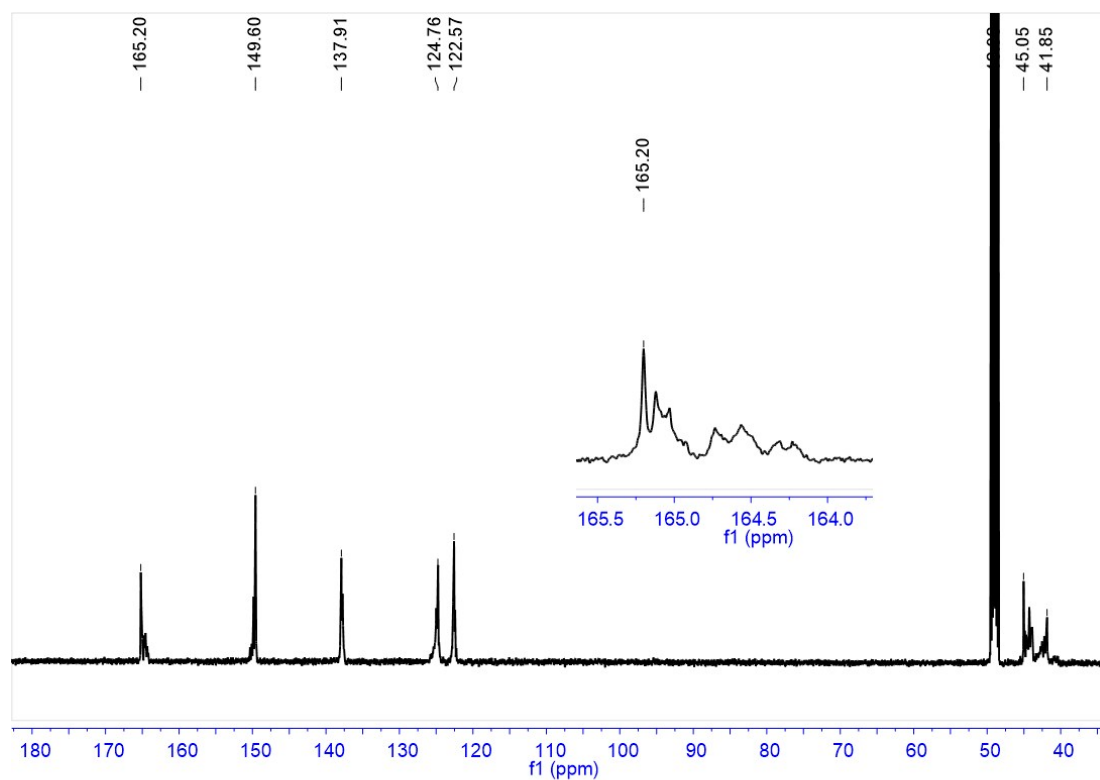
SFig. 11 ¹H NMR spectrum of (2,5-Me₂C₄H₂NSiMe₂NC₆H₅)Y(CH₂C₆H₄NMe₂-o)₂ (**6**)



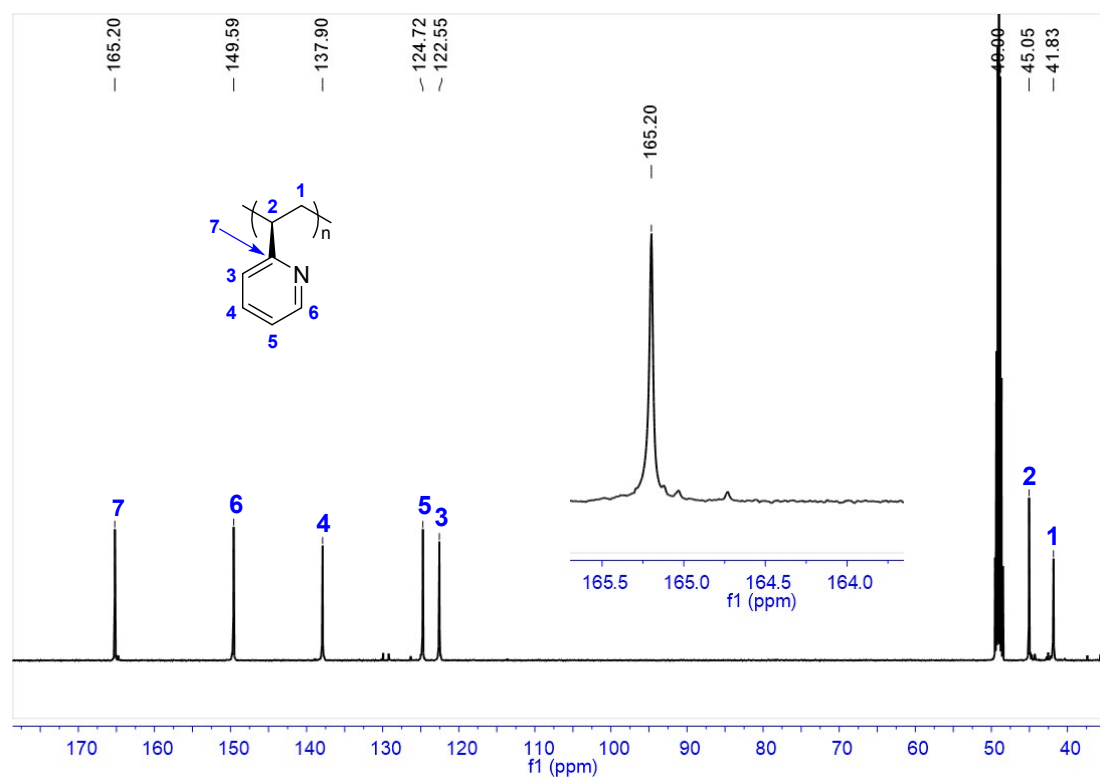
SFig. 12 ¹³C NMR spectrum of (2,5-Me₂C₄H₂NSiMe₂NC₆H₅)Y(CH₂C₆H₄NMe₂-o)₂ (**6**)



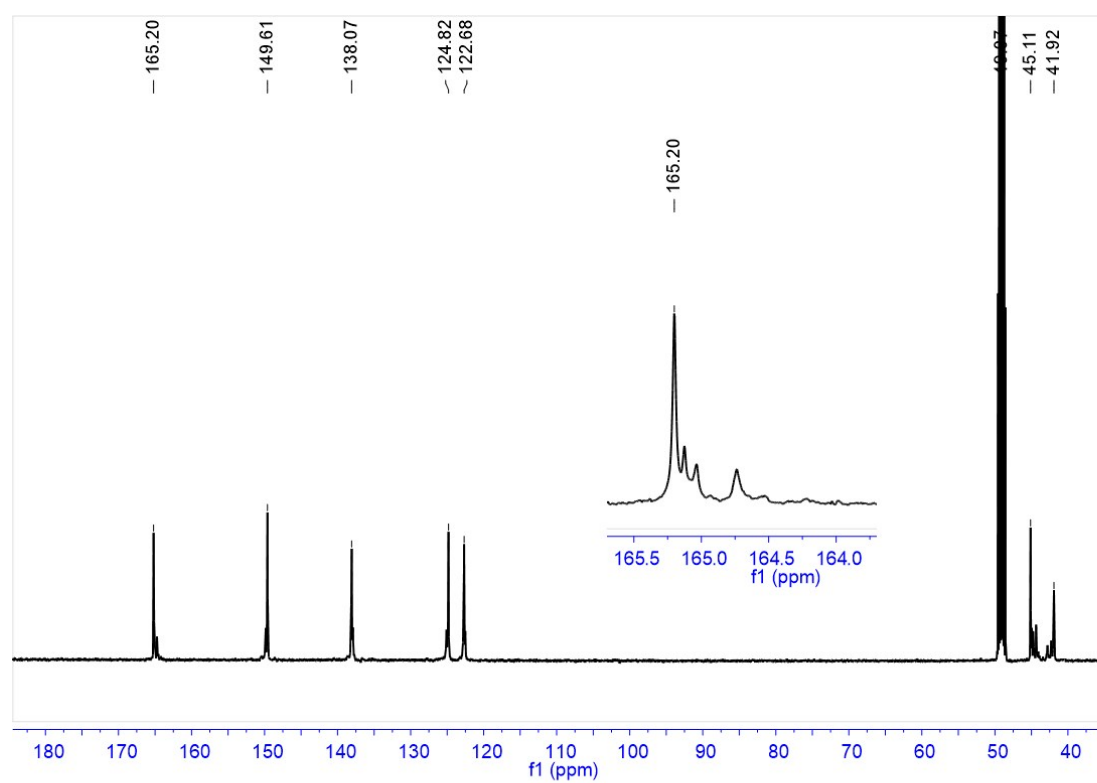
SFig. 13 GPC curve for representative polymer



SFig. 14 The ^{13}C NMR spectrum of P2VP obtained from 2-VP by using catalyst **1** as initiator in toluene at 25 °C (run 1, Table 1) in CD_3OD .



SFig. 15 The ^{13}C NMR spectrum of P2VP obtained from 2-VP by using catalyst **4** as initiator in toluene at 25 °C (run 5, Table 1) in CD_3OD .



SFig. 16 The ^{13}C NMR spectrum of P2VP obtained from 2-VP by using catalyst **5** as initiator in toluene at 25 °C (run 9, Table 1) in CD_3OD .