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Supporting Information

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Figure S 1. ¹H NMR spectrum of all-*cis*-1,3,5-trimethoxy-1,3,5-triphenyl-1,3,5-trisilacyclohexane (**4**) in C_6D_6 at 298 K.



Figure S 2. Sections of ${}^{13}C{}^{1}H$ NMR spectrum of all-*cis*-1,3,5-trimethoxy-1,3,5-triphenyl-1,3,5-trisilacyclohexane (4) in C₆D₆ at 298 K.



32 30 28 -4 -6 -8 -10 -12 -14 20 -16 -18 -20 24 22 18 16 14 12 10 6 4 δ [ppm] 26 8 2 0 -2 Figure S 3. Sections of ${}^{29}Si{}^{1}H$ NMR spectrum of all-*cis*-1,3,5-trimethoxy-1,3,5-triphenyl-1,3,5trisilacyclohexane (4) in C_6D_6 at 298 K.



Figure S 4. Sections of ¹H NMR spectrum of 1,3,5-trichloro-1,3,5-triphenyl-1,3,5-trisilacyclohexane (**5**) in C_6D_6 at 298 K.



C₆D₆ at 298 K.



C₆D₆ at 298 K.



Figure S 7. Sections of ¹H NMR spectrum of all-*cis*-1,3,5-triphenyl-1,3,5-trisilacyclohexane (6) in C_6D_6 at 298 K.



Figure S 8. Sections of ¹³C{¹H} NMR spectrum of all-*cis*-1,3,5-triphenyl-1,3,5-trisilacyclohexane (6) in C_6D_6 at 298 K.



Figure S 9. Sections of ²⁹Si{¹H} NMR spectrum of all-*cis*-1,3,5-triphenyl-1,3,5-trisilacyclohexane (6) in C_6D_6 at 298 K.



Figure S 10. Sections of ¹H NMR spectrum of all-*cis*-1,3,5-triethynyl-1,3,5-triphenyl-1,3,5-trisilacyclohexane (7) in C_6D_6 at 298 K.



Figure S 11. Sections of ${}^{13}C{}^{1}H$ NMR spectrum of all-*cis*-1,3,5-triethynyl-1,3,5-triphenyl-1,3,5-trisilacyclohexane (**7**) in C₆D₆ at 298 K.



Figure S 12. Sections of 29 Si{ 1 H} NMR spectrum of all-cis-1,3,5-triethynyl-1,3,5-triphenyl-1,3,5-trisilacyclohexane (7) in C₆D₆ at 298 K.



Figure S 13. Sections of ¹H NMR spectrum of boron compound 8 in C_6D_6 at 298 K.



Figure S 14. Sections of ${}^{19}F{}^{1}H{}$ NMR spectrum of boron compound 8 in C₆D₆ at 298 K.



Figure S 15. Sections of ${}^{13}C{}^{1}H$ NMR spectrum of boron compound **8** in C₆D₆ at 298 K.



Figure S 16. Sections of ${}^{29}Si{}^{1}H$ NMR spectrum of boron compound 8 in C₆D₆ at 298 K.



Figure S 17. Sections of ¹H NMR spectrum of 1,3,5-tris(dimethylgallanylethynyl)-1,3,5-triphenyl-1,3,5-trisilacyclohexane (9) in C_6D_6 / Et₂O mixture at 298 K.



Figure S 18. Sections of ${}^{13}C{}^{1}H$ NMR spectrum of 1,3,5-tris(dimethylgallanylethynyl)-1,3,5-triphenyl-1,3,5-trisilacyclohexane (9) in C₆D₆ / Et₂O mixture at 298 K.



 $\begin{array}{c} \text{-11 -12 -13 -14 -15 -16 -17 -18 -19 -20 -21 -22 -23 -24 -25 -26 -27 -28 -29 -30 -31 -32 -33 -34 -35 -36 -37 -38 -39 -40 -41 -42 -43 -44 -45 \\ \hline \textbf{Figure S 19. Sections of $^{29}Si\{^{1}H\}$ NMR spectrum of 1,3,5-tris(dimethylgallanylethynyl)-1,3,5-triphenyl-1,3,5-trisilacyclohexane (9) in C_{6}D_{6} / Et_{2}O mixture at 298 K. \end{array}$



Figure S 20. Sections of ¹H NMR spectrum of 1,3,5-tris(diethylgallanylethynyl)-1,3,5-triphenyl-1,3,5-trislacyclohexane (**10**) in C₆D₆/Et₂O mixture at 298 K.



 $\begin{array}{c} \hline 142 \ 140 \ 138 \ 136 \ 134 \ 132 \ 130 \ 126 \ 126 \ 126 \ 122 \ 120 \ 118 \ 116 \ 114 \ 112 \ 68 \ 66 \ 64 \ 62 \ 16 \ 14 \ 12 \ 10 \ 8 \ 6 \ 4 \ 2 \ 0 \end{array}$ Figure S 21. Sections of ${}^{13}C{}^{1}H$ NMR spectrum of 1,3,5-tris(diethylgallanylethynyl)-1,3,5-triphenyl-1,3,5-trisilacyclohexane (10) in C₆D₆ / Et₂O mixture at 298 K.



Figure S 22. Sections of ²⁹Si{¹H} NMR spectrum of 1,3,5-tris(diethylgallanylethynyl)-1,3,5-triphenyl-1,3,5-trisilacyclohexane (10) in C_6D_6 / Et₂O mixture at 298 K.