Supporting Information

Ruthenium-Catalyzed trans-Hydrogermylation of Alkynes: Formation of 2,5-Disubstituted Germoles through Double trans-Hydrogermylation of 1,3-Diynes

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**General.** All manipulations were carried out in a nitrogen-filled gloved box and with standard Schlenk techniques under an argon atmosphere. Column chromatography was performed with silica gel 60N (Kanto). Preparative thin-layer chromatography was performed with silica gel 60 PF254 (Merck). 1H and 13C NMR spectra were recorded at 300.77 MHz and 13C NMR at 75.46 MHz, respectively. Proton chemical shifts were referenced to the residual proton signals in CDCl3 (δ 7.26 ppm). Carbon chemical shifts were referenced to the carbon signals in CDCl3 (δ 77.00 ppm) and C6D6 (δ 128.00 ppm). 11B NMR spectra were recorded at 128.48 MHz, and boron chemical shifts were referenced to an external standard BF3·OEt2. High resolution mass spectra were recorded on a JEOL JMS-SX102A. UV-vis spectra were recorded on a JASCO V-550. Fluorescence spectra were recorded on a JASCO FP-777. The molecular weights of polymers were determined by gel permeation chromatography measured in CHCl3 at 40 °C with a system consisting of a TOSOH 8020 series and Shodex columns (K-805L and K-804L). Thermal data were obtained using an SII EXSTAR6000 DSC6220 at a heating rate 10 °C/min.

**Materials.** [Cp*Ru(MeCN)3]PF₆ (1), 1,3-diyne 9, and 1,3,5,7-tetrayne 14 were prepared according to literature procedures. Dimethyl(2-(phenylethynyl)phenyl)germane (7) was prepared by the reaction of (2-(phenylethynyl)phenyl)lithium (generated from 1-bromo-2-(phenylethynyl)benzene and n-BuLi) and Me2GeCl2, followed by treatment with LiAlH4. 1,2-Dichloroethane was distilled from calcium hydride. All other reagents and solvents were used as received without further purification.

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General Procedure for Ruthenium-Catalyzed \textit{trans}-Hydrogermylation of Alkynes

\begin{center}
\[ \text{Pr} \text{GePh}_3 + \text{Pr} \text{GePh}_3 \rightarrow \text{Pr} \text{GeEl}_3 \]
\end{center}

To a solution of \([\text{Cp}^*\text{Ru(MeCN)}_3]\text{PF}_6\) (15.1 mg, 0.030 mmol) in dry 1,2-dichloroethane (2.0 mL) was added a solution of oct-1-yn (2a, 66.1 mg, 0.600 mmol) and triethylgermane (3a, 144.7 mg, 0.900 mmol) in dry 1,2-dichloroethane (1.0 mL). After being stirred under argon atmosphere for 9 h at room temperature, the volatile material was removed under reduced pressure. The residue was purified by thin layer chromatography (hexane:AcOEt = 10:1) to give \((Z)-\text{triethyl(oct-4-en-4-yl)germane (4a)}\) (125.7 mg, 77%). \(^1\text{H} \text{NMR (CDCl}_3\text{)} \delta 0.78-0.94 \text{ (m, 12H), 1.02 (t, J = 7.8 Hz, 9H), 1.24-1.44 \text{ (m, 4H), 2.00 (q, J = 6.8 Hz, 4H), 5.91 (t, J = 7.4 Hz, 1H); }^{13}\text{C NMR (CDCl}_3\text{)} \delta 5.4, 9.1, 13.8, 13.9, 23.4, 23.7, 34.4, 41.1, 138.9, 140.4; \text{HRMS (EI) calcd for C}_{14}\text{H}_{30}\text{Ge (M}^+\text{) 272.1559}, \text{found 272.1552.}

\((E)-\text{ and (Z)-Oct-4-en-4-yltriphenylgermane (4b)}\). According to the general procedure, 4b (55.7 mg, 45%, ca. 1:1 mixture of isomers) was obtained from 2a (33.1 mg, 0.300 mmol) and 3b (137.2 mg, 0.450 mmol). \(^1\text{H} \text{NMR (CDCl}_3\text{)} \delta 0.59 (t, J = 7.2 Hz, 3H), 0.67-0.80 \text{ (m, 3H + 3H), 0.96 (t, J = 7.4 Hz, 3H), 1.11-1.32 \text{ (m, 2H + 2H + 2H), 1.39-1.53 \text{ (m, 2H), 1.86 (q, J = 7.4 Hz, 2H), 2.08-2.17 \text{ (m, 2H), 2.19-2.32 \text{ (m, 2H + 2H), 5.85 (t, J = 7.1 Hz, 1H), 6.29 (t, J = 7.5 Hz, 1H), 7.27-7.34 \text{ (m, 9H + 9H), 7.42-7.48 \text{ (m, 6H + 6H).}}\n
\((Z)-\text{Triethyl(2-deuterio-1-phenylvinyl)germane (6a)}\). According to the general procedure, 6a (40.3 mg, 76%, 88:12 mixture of isomers) was obtained from 5a (20.6 mg, 0.200 mmol) and 3a (35.4 mg, 0.220 mmol). \(^1\text{H} \text{NMR (CDCl}_3\text{)} \delta 0.83-0.94 \text{ (m, 6H), 0.95-1.11 \text{ (m, 9H), 5.87 (s, 1H, major), 6.81 (t, 1H, minor), 7.14-7.45 (m, 5H); }^{13}\text{C NMR (CDCl}_3\text{)} \delta 4.4 \text{(minor), 4.6 (major), 8.8 (major), 9.0 (monor), 125.3 (t, J = 24.3 Hz), 126.1, 126.2, 126.4, 127.6, 128.1, 128.4, 143.2, 145.3, 151.3.}

\((Z)-(1,2-\text{Diphenylvinyl})\text{triethylgermane}^4 \text{ (6b)}\). According to the general procedure, 6b (25.6 mg, 25%) was obtained from 5b 53.5 mg, 0.300 mmol) and 3a 72.4 mg, 0.450 mmol).

\begin{center}
\[ \text{Ph} \text{GeEl}_3 + \text{Ph} \text{GeEl}_3 \rightarrow \text{Ph} \text{GeEl}_3 \]
\end{center}

\(1,1-\text{Dimethyl-2-phenylenzo[b]germole}^5 \text{ (8)}\). According to the general procedure, 8 (13.2 mg, 45%) was obtained from 7 (29.0 mg, 0.103 mmol).


General Procedure for Ruthenium-Catalyzed Double trans-Hydrogermylation of 1,3-Diynes

To a solution of [Cp*Ru(MeCN)₃]PF₆ (10.1 mg, 0.020 mmol) in dry 1,2-dichloroethane (1.0 mL) was added a solution of 1,4-diphenylbuta-1,3-diyn (9a, 40.5 mg, 0.200 mmol) and diphenylgermane (10, 137.3 mg, 0.600 mmol) in dry 1,2-dichloroethane (1.0 mL). After being stirred under argon atmosphere for 10 h at room temperature, the volatile material was removed under reduced pressure. The residue was purified by thin layer chromatography (hexane:AcOEt = 10:1) to give 1,1,2,5-tetraphenylgermole (11a, 80.3 mg, 93%). mp 164 °C. ¹H NMR (CDCl₃) δ 7.14-7.28 (m, 6H), 7.33-7.39 (m, 6H), 7.43-7.46 (m, 6H), 7.62-7.65 (m, 4H); ¹³C NMR (CDCl₃) δ 126.8, 127.1, 128.6, 128.7, 129.5, 134.8, 135.0, 137.1, 138.9, 145.2; HRMS (EI) calcd for C₃₆H₂₁Ge (M⁺) 432.0933, found 432.0936. Anal. Calcd for C₃₆H₂₁Ge: C, 78.01; H, 5.14. Found: C, 78.09; H, 5.19.

2.5-Di(2-naphthyl)-1,1-diphenylgermole (11b). According to the general procedure, 11b (70.2 mg, 66%) was obtained from 9b (60.5 mg, 0.200 mmol) and 10 (137.3 mg, 0.600 mmol). mp 179 °C. ¹H NMR (CDCl₃) δ 7.36-7.43 (m, 10H), 7.62 (s, 2H), 7.67-7.78 (m, 12H), 7.83 (s, 2H); ¹³C NMR (CDCl₃) δ 124.4, 125.7, 126.1, 126.7, 127.5, 128.0, 128.2, 128.8, 129.6, 132.7, 133.7, 134.9, 135.0, 136.5, 137.6, 145.3; HRMS (EI) calcd for C₃₆H₂₁Ge (M⁺) 532.1246, found 532.1245.

2.5-Bis(4-methoxyphenyl)-1,1-diphenylgermole (11c). According to the general procedure, 11c (42.7 mg, 87%) was obtained from 9c (26.2 mg, 0.100 mmol) and 10 (68.6 mg, 0.300 mmol). mp 208 °C. ¹H NMR (CDCl₃) δ 3.76 (s, 6H), 6.79 (d, J = 9.0 Hz, 4H), 7.30 (s, 2H), 7.35-7.39 (m, 10H), 7.61-7.64 (m, 4H); ¹³C NMR (CDCl₃) δ 55.3, 114.1, 127.9, 128.6, 129.4, 131.9, 135.0, 135.1, 135.2, 143.4, 158.8; HRMS (EI) calcd for C₃₆H₂₁GeO₂ (M⁺) 492.1145, found 492.1141.

2.5-Bis(4-fluorophenyl)-1,1-diphenylgermole (11d). According to the general procedure, 11d (74.2 mg, 80%) was obtained from 9d (47.6 mg, 0.200 mmol) and 10 (137.3 mg, 0.600 mmol). mp 148 °C. ¹H NMR (CDCl₃) δ 6.91-7.00 (m, 4H), 7.34-7.46 (m, 12H), 7.62-7.66 (m, 4H); ¹³C NMR (CDCl₃) δ 115.6 (¹JC-F = 22.0 Hz), 128.2 (¹JC-F = 8.0 Hz), 128.8, 129.7, 134.3, 134.9, 135.1 (¹JC-F = 3.5 Hz), 136.7, 143.8, 162.0 (¹JC-F = 222.1 Hz); HRMS (EI) calcd for C₂₈H₂₀F₂Ge (M⁺) 468.0745, found 468.0745.

(6) [1016650-38-6].
(7) [1016650-40-0].
(8) [1016650-44-4].
(9) [1016650-41-1].
2,5-Bis(3-bromophenyl)-1,1-diphenylgermole\textsuperscript{10} (11e). According to the general procedure, 11e (109.5 mg, 93%) was obtained from 9e (72.0 mg, 0.200 mmol) and 10 (137.3 mg, 0.600 mmol). mp 153 °C. \(^1\)H NMR (CDCl\(_3\)) \(\delta 7.08\) (dt, \(J = 7.7, 0.9\) Hz, 2H), 7.23-7.31 (m, 4H), 7.36-7.43 (m, 8H), 7.58-7.64 (m, 6H); \(^{13}\)C NMR (CDCl\(_3\)) \(\delta 122.9, 126.1, 128.8, 128.9, 129.9, 130.05, 130.12, 133.7, 134.8, 138.1, 140.8, 144.6\); HRMS (EI) calcd for C\(_{28}\)H\(_{20}\)Br\(_2\)Ge (M\(^+\)) 587.9144, found 587.9143.

\(\begin{array}{c}
\text{Br} \quad \text{Ge} \quad \text{Ph} \quad \text{Br} \\
\end{array}\)

1,1-Diphenyl-2,5-bis(4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl)germole \textsuperscript{11} (11f). According to the general procedure, 11f (93.4 mg, 91%) was obtained from 9f (68.1 mg, 0.150 mmol) and 10 (103.0 mg, 0.450 mmol). \(^1\)H NMR (CDCl\(_3\)) \(\delta 1.33\) (s, 24H), 7.20 (t, \(J = 7.4\) Hz, 2H), 7.28-7.43 (m, 8H), 7.49-7.50 (m, 2H), 7.57-7.65 (m, 6H), 8.04 (s, 2H); \(^{13}\)C NMR (CDCl\(_3\)) \(\delta 24.9, 83.7, 128.0, 128.6, 129.4, 130.8, 132.2, 133.2, 134.9, 135.0, 137.3, 138.2, 145.0\) [carbon attached to boron was not observed due to quadrupole broadening caused by the boron nucleus]; \(^{11}\)B NMR (CDCl\(_3\), 128.15 MHz) \(\delta 30.9\); HRMS (FAB) calcd for C\(_{40}\)H\(_{44}\)B\(_2\)GeO\(_4\) (M\(^+\)) 684.2637, found 684.2645.

\(\begin{array}{c}
\text{Me}_3\text{Si} \quad \text{Ge} \quad \text{Ph} \quad \text{SiMe}_3 \\
\end{array}\)

1,1-Diphenyl-2,5-bis(4-(trimethylsilyl)phenyl)germole\textsuperscript{12} (11g). According to the general procedure, 11g (86.2 mg, 75%) was obtained from 9g (69.3 mg, 0.200 mmol) and 10 (137.2 mg, 0.599 mmol). \(^1\)H NMR (CDCl\(_3\)) \(\delta 0.25\) (s, 18H), 7.34-7.47 (m, 14H), 7.50 (s, 2H), 7.66-7.69 (m, 4H); \(^{13}\)C NMR (CDCl\(_3\)) \(\delta -1.1, 126.1, 128.7, 129.5, 133.7, 134.8, 135.0, 137.3, 139.1, 139.3, 145.3\); HRMS (EI) calcd for C\(_{34}\)H\(_{38}\)GeSi\(_2\) (M\(^+\)) 576.1724, found 576.1725.

\(\begin{array}{c}
\text{O} \quad \text{Ge} \quad \text{Ph} \quad \text{SiMe}_3 \\
\end{array}\)

2,5-Bis(4-nitrophenyl)-1,1-diphenylgermole\textsuperscript{13} (11h). According to the general procedure, 11h (41.7 mg, 40%) was obtained from 9h (58.5 mg, 0.200 mmol) and 10 (137.2 mg, 0.599 mmol). \(^1\)H NMR (CDCl\(_3\)) \(\delta 7.39-7.47\) (m, 6H), 7.52-7.62 (m, 10H), 8.12 (d, \(J = 8.7\) Hz, 4H); \(^{13}\)C NMR (CDCl\(_3\)) \(\delta 124.2, 127.3, 129.2, 130.4, 132.6, 134.7, 140.8, 144.8, 146.1, 146.7\); HRMS (EI) calcd for C\(_{28}\)H\(_{20}\)GeN\(_2\)O\(_4\) (M\(^+\)) 522.0635, found 522.0635.

\(\begin{array}{c}
\text{O} \quad \text{Ge} \quad \text{Ph} \quad \text{NO}_2 \\
\end{array}\)

\(\text{(10) [1046472-04-1].}\)

\(\text{(11) [1016650-49-9].}\)

\(\text{(12) [1016650-47-7].}\)

\(\text{(13) [1016650-43-3].}\)
1,1-diphenyl-2,5-di(3-thienyl)germole\textsuperscript{14} (11i). According to the general procedure, 11i (83.3 mg, 94%) was obtained from 9i (42.9 mg, 0.200 mmol) and 10 (137.2 mg, 0.599 mmol). mp 135 °C. \textsuperscript{1}H NMR (CDCl\textsubscript{3}) \( \delta \) 7.06-7.11 (m, 2H), 7.22-7.32 (m, 6H), 7.34-7.44 (m, 6H), 7.61-7.68 (m, 4H); \textsuperscript{13}C NMR (CDCl\textsubscript{3}) \( \delta \) 122.0, 125.3, 125.8, 128.7, 129.6, 134.4, 135.0, 136.5, 138.0, 141.1; HRMS (EI) calcd for C\textsubscript{24}H\textsubscript{18}GeS\textsubscript{2} (M\textsuperscript{+}) 444.0062, found 444.0062.

1,1-Diphenyl-2,5-di(pyrimidin-5-yl)germole (11j). According to the general procedure, 11j (80.1 mg, 69%) was obtained from 9j (41.0 mg, 0.199 mmol) and 10 (137.3 mg, 0.600 mmol). mp 135 °C. \textsuperscript{1}H NMR (CDCl\textsubscript{3}) \( \delta \) 7.36-7.49 (m, 6H), 7.53-7.58 (m, 4H), 7.60 (s, 2H), 8.76 (s, 4H), 9.01 (s, 2H); \textsuperscript{13}C NMR (CDCl\textsubscript{3}) \( \delta \) 129.3, 130.5, 131.5, 132.1, 134.5, 139.7, 140.4, 154.2, 157.0; HRMS (EI) calcd for C\textsubscript{24}H\textsubscript{18}GeN\textsubscript{4} (M\textsuperscript{+}) 436.0743, found 436.0730.

2,5-Dicyclohexenyl-1,1-diphenylgermole (11k). According to the general procedure, 11k (61.2 mg, 70%) was obtained from 9k (42.1 mg, 0.200 mmol) and 10 (137.3 mg, 0.600 mmol). mp 59 °C (decomp.). \textsuperscript{1}H NMR (CDCl\textsubscript{3}) \( \delta \) 1.50-1.57 (m, 4H), 1.63-1.71 (m, 4H), 1.98-2.08 (m, 4H), 2.22-2.32 (m, 4H), 5.75 (t, \( J = 4.1 \) Hz, 2H), 6.75 (s, 2H), 7.35-7.38 (m, 6H), 7.56-7.59 (m, 4H); \textsuperscript{13}C NMR (CDCl\textsubscript{3}) \( \delta \) 22.4, 22.7, 25.8, 26.4, 128.3, 128.9, 130.4, 133.6, 135.0, 136.4, 136.7, 145.8; HRMS (EI) calcd for C\textsubscript{28}H\textsubscript{30}Ge (M\textsuperscript{+}) 440.1559, found 440.1560.

2-(4-Methoxyphenyl)-1,1,5-triphenylgermole\textsuperscript{15} (11l). According to the general procedure, 11l (65.7 mg, 95%) was obtained from 9l (34.8 mg, 0.150 mmol) and 10 (103 mg, 0.450 mmol). mp 186 °C. \textsuperscript{1}H NMR (CDCl\textsubscript{3}) \( \delta \) 3.78 (s, 3H), 6.82 (d, \( J = 9.0 \) Hz, 2H), 7.14-7.20 (m, 1H), 7.24-7.28 (m, 2H), 7.33-7.48 (m, 12H), 7.56-7.68 (m, 4H); \textsuperscript{13}C NMR (CDCl\textsubscript{3}) \( \delta \) 55.2, 114.1, 126.7, 126.8, 128.0, 128.58, 129.5, 131.7, 134.9, 135.0, 135.1, 137.4, 139.0, 143.8, 144.7, 158.9; HRMS (EI) calcd for C\textsubscript{29}H\textsubscript{24}GeO (M\textsuperscript{+}) 462.1039, found 462.1039.

2-(4-Cyanophenyl)-1,1,5-triphenylgermole\textsuperscript{16} (11m). According to the general procedure, 11m (48.7 mg, 71%) was obtained from 9m (34.1 mg, 0.150 mmol) and 10 (103 mg, 0.450 mmol). mp 210 °C. \textsuperscript{1}H NMR (CDCl\textsubscript{3}) \( \delta \) 7.19-7.28 (m, 3H), 7.34-7.53 (m, 15H), 7.58-7.61 (m, 3H); \textsuperscript{13}C NMR (C\textsubscript{6}D\textsubscript{6}) \( \delta \) 110.7, 119.0, 127.1, 127.4, 128.1, 129.1, 130.2, 132.5, 134.5, 135.1, 136.9, 138.9, 140.6, 143.1, 143.7, 148.0; HRMS (EI) calcd for C\textsubscript{29}H\textsubscript{23}GeN (M\textsuperscript{+}) 457.0886,

\textsuperscript{(14)} 1016650-46-6.
\textsuperscript{(15)} 1016650-50-2.
\textsuperscript{(16)} 1016650-51-3.
1,1,2-Triphenyl-5-(4-vinylphenyl)germole<sup>17</sup> (11n). According to the general procedure, 11n (79.0 mg, 87%) was obtained from 9n (45.6 mg, 0.200 mmol) and 10 (137.3 mg, 0.600 mmol). mp 159 °C. <sup>1</sup>H NMR (CDCl<sub>3</sub>) δ 5.20 (d, <i>J</i> = 10.8 Hz, 1H), 5.71 (d, <i>J</i> = 17.7 Hz, 1H), 6.67 (dd, <i>J</i> = 17.7, 10.8 Hz, 1H), 7.15-7.47 (m, 17H), 7.63-7.66 (m, 4H); <sup>13</sup>C NMR (CDCl<sub>3</sub>) δ 113.4, 126.5, 126.8, 127.0, 127.1, 128.6, 128.7, 129.6, 134.7, 135.0, 136.4, 137.0, 137.08, 137.15, 138.4, 138.9, 144.8, 145.3; HRMS (EI) calcd for C<sub>30</sub>H<sub>24</sub>Ge (M<sup>+</sup>) 458.1090, found 458.1095.

2-Hexyl-5-(4-methylphenyl)-1,1-diphenylgermole (11o). According to the general procedure, 11o (40.1 mg, 44%) was obtained from 9o (44.9 mg, 0.200 mmol) and 10 (137.3 mg, 0.600 mmol). <sup>1</sup>H NMR (CDCl<sub>3</sub>) δ 0.79 (t, <i>J</i> = 7.6 Hz, 6H), 1.1-1.4 (m, 12H), 7.18-7.47 (m, 12H); <sup>13</sup>C NMR (CDCl<sub>3</sub>) δ 13.6, 15.5, 25.9, 27.4, 126.4, 126.7, 128.6, 136.1, 139.8, 146.5; HRMS (EI) calcd for C<sub>29</sub>H<sub>32</sub>Ge (M<sup>+</sup>) 392.1559, found 392.1553.

1,1-Dibutyl-2,5-diphenylgermole (13). According to the general procedure, 13 (18.8 mg, 47%) was obtained from 9a (20.7 mg, 0.102 mmol) and 12 (58.5 mg, 0.309 mmol). <sup>1</sup>H NMR (CDCl<sub>3</sub>) δ 0.75 (t, <i>J</i> = 7.6 Hz, 6H), 1.1-1.4 (m, 12H), 7.18-7.47 (m, 12H); <sup>13</sup>C NMR (CDCl<sub>3</sub>) δ 13.6, 15.5, 25.9, 27.4, 126.4, 126.7, 128.6, 136.1, 139.8, 146.5; HRMS (EI) calcd for C<sub>24</sub>H<sub>30</sub>Ge (M<sup>+</sup>) 392.1559, found 392.1553.

1,1',1',5,5'-Hexaphenyl-2,2'-bigermole (15a). According to the general procedure, 15a (79.1 mg, 56%) was obtained from 14a (50.1 mg, 0.200 mmol) and 10 (274.6 mg, 1.20 mmol). mp 131 °C. <sup>1</sup>H NMR (CDCl<sub>3</sub>) δ 6.89 (d, <i>J</i> = 3.9 Hz, 2H), 7.10-7.25 (m, 8H), 7.34-7.44 (m, 16H), 7.61-7.66 (m, 8H); <sup>13</sup>C NMR (CDCl<sub>3</sub>) δ 126.8, 128.58, 128.64, 129.4, 135.0, 135.2, 137.9, 139.0, 141.4, 144.7, 145.9; HRMS (EI) calcd for C<sub>44</sub>H<sub>34</sub>Ge<sub>2</sub> (M<sup>+</sup>) 710.1084, found 710.1083.

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<sup>17</sup> [1016650-52-4].
### Table S1. Photophysical and Thermal Properties of Germoles

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<th>fluorescence&lt;sup&gt;b&lt;/sup&gt;</th>
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<td>log $\varepsilon$</td>
<td>$\lambda_{\text{em}}$ (nm)</td>
<td>$\Phi_F$</td>
<td>$T_g$&lt;sup&gt;c&lt;/sup&gt; (°C)</td>
<td>$T_m$&lt;sup&gt;d&lt;/sup&gt; (°C)</td>
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<td>4.35</td>
<td>489&lt;sup&gt;f&lt;/sup&gt;</td>
<td>0.03&lt;sup&gt;f&lt;/sup&gt;</td>
<td>60</td>
<td>210</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(15a)</td>
<td>474</td>
<td>4.11</td>
<td>–</td>
<td>&lt;0.01</td>
<td>58</td>
<td>131</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Absorption Maxima measured in CHCl<sub>3</sub>.<sup>b</sup> Measured in hexane. Determined with reference to quinine sulfate in 0.1 N H<sub>2</sub>SO<sub>4</sub> and anthracene in EtOH (excited at 250 nm).<sup>c</sup> Glass transition temperature.<sup>d</sup> Melting point.<sup>e</sup> Absorption edge.<sup>f</sup> Measured in CHCl<sub>3</sub>.

**Figure S1.** Absorption and Emission Spectra of Germole 11a
Pr\(\equiv\)GeEt\(_3\)  
H\(\equiv\)Pr 

4a