Angewandte Chemie
Eine Zeitschrift der Gesellschaft Deutscher Chemiker

Supporting Information

From π-Bonded Gallapnictenes to Nucleophilic, Redox-Active Metal-Coordinated Pnictanides

*Julia Krüger, Christoph Wölper, and Stephan Schulz**

anie_202013618_sm_miscellaneous_information.pdf

Supporting Information

Contents

E) Quantum chemical calculations

General Synthetic methods

All manipulations were performed in an atmosphere of purified argon using standard Schlenk and glove-box techniques. Toluene, Et_2O and *n*-hexane were dried using an mBraun Solvent Purification System (SPS). Benzene and THF were carefully dried over K. Deuterated solvents were dried over activated molecular sieves (4 Å) and degassed prior to use. The anhydrous nature of the solvents was verified by Karl Fischer titration. LGa,[1] IPr,[2] $[H(OEt_2)_2][BArF_4]$,[3] $[H(OEt_2)_2][Al(OC(CF_3)_3)_4]$,[4] LGaEGa(Cl)L (E = As, Sb)[5] were prepared according to literature methods, whereas other chemicals were obtained from commercial sources and purified prior to use. Microanalyses were performed at the Elementaranalyselabor of the University of Duisburg-Essen. The melting points were measured using a Thermo Scientific 9300 apparatus. Cyclic voltammetry measurements were performed in a glovebox using a Metrohm Autolab PGSTAT 204 potentiostat with a three electrodes setup consisting of a Pt disc (*d* = 1 mm) working electrode, Pt wire counter electrode, and Ag wire pseudo-reference electrode using ferrocene as the internal standard.

Spectroscopic methods NMR Spectroscopy

^1H (300.1 MHz; 400 MHz) and $^{13}C\{^1H\}$ (75.5 MHz; 150 MHz) NMR spectra were recorded using a Bruker Avance DPX-300 spectrometer or Ascend™ 400 spectrometer. The spectra were referenced to internal C_6D_5H (^1H: δ = 7.16; ^{13}C: δ = 128.06), $CDHCl_2$ (^1H: δ = 5.32; ^{13}C: δ = 53.84 and C_4D_7HO (^1H: δ = 3.58, 1.72; ^{13}C: δ = 67.21, 25,31). IR spectra were recorded with an ALPHA-T FT-IR spectrometer equipped with a single reflection ATR sampling module. The IR spectrometer was placed in a glovebox to guarantee measurements under inert gas conditions.

Synthesis [IPrH][Cl]

IPr (500 mg, 2.66 mmol) was dissolved in 4 mL toluene and HCl in Et_2O (2.66 mmol; 1.33 mL 2 M) was added at ambient temperature. The reaction mixture was stirred for 1 h while a white precipitate was formed. The raw product was separated from the mother liquor and washed two times with 1 mL toluene. The white residue was dried in vacuum to yield analytically pure [IPrH][Cl] (yield 545 mg; 93 %). **^{1}H-NMR ($C\boldsymbol{D_2Cl_2}$, 300 MHz, 25 °C) δ [ppm]:** 10.84(s, 1 H, $C^+\boldsymbol{H}$), 4.49 (s, 2 H, $^3J_{HH}$ = 6.8 Hz, $C\boldsymbol{H}(CH_3)_2$), 2.23 (s, 6 H, $CC\boldsymbol{H_3}$), 1.68 (d, 12 H, $^3J_{HH}$ = 6.8 Hz, $CH(C\boldsymbol{H_3})_2$).

Synthesis $[[LGa(Cl)]_2E][IPrH]$

LGaEGa(Cl)L (E = As, Sb) is prepared in-situ from the reaction of 3 equivalents LGa with ECl_3 (E = As, Sb) as the purification of LGaEGa(Cl)L from $LGaCl_2$ results in a low yield of the starting compound LGaEGa(Cl)L. Since $LGaCl_2$ does not react with [IPrH][Cl] and $[LGa(Cl)Sb]_2$, which is always formed in small amount as by-product, can be separated by filtration before starting the reaction with [IPrH][Cl] due to it's low solubility in benzene, the in-situ synthesis generates significantly higher yields referred to ECl_3.

LGa (500 mg; 1.03 mmol) was dissolved in 2 mL benzene and $AsCl_3$ (62 mg; 28.7 µL; 0.34 mmol) in 0.5 mL benzene was added (*in-situ* synthesis of LGaAsGa(Cl)L). The solution was stirred for 3 days and then filtered in a Schlenk flask with [IPrH][Cl] (52 mg; 0.24 mmol). The suspension was stirred vigorously

for 2 h while a rose crystalline precipitate was formed. The raw product was separated from the mother liquor and washed three times with 0.3 mL benzene. The rose residue was dried in vacuum to yield analytically pure **1**.

1: Yield 234 mg (75 % referred to [IPrH][Cl]). M.p.: 198 °C (dec.). Anal. Calcd. for $C_{69}H_{103}N_6Cl_2Ga_2As$: C, 63.66; H, 7.97; N, 6.46. Found: C, 64.8; H, 7.87; N, 5.95 % **^{1}H-NMR (THF-d_8, 300 MHz, 25 °C) δ [ppm]:** 9.21 (s, 1 H, *H*C$^+$), 6.90-7.09 (m, 12 H, C_6H_3), 4.76 (s, 2 H, *γ*-C*H*), 4.67 (sept, 2 H, $^3J_{HH}$ = 6.7 Hz, C*H*$(CH_3)_2$), 3.56 (sept (br), 4 H, C*H*$(CH_3)_2$), 3.28 (sept (br), 4 H, C*H*$(CH_3)_2$), 2.35 (s, 6 H, CC*H*$_3$), 1.60 (d, 12 H, $^3J_{HH}$ = 6.7 Hz, CH(C*H*$_3)_2$), 1.48 (s, 12 H, CC*H*$_3$), 1.03-1.06 (m, 24 H, CH(C*H*$_3)_2$), 0.82-0.86 (m, 24 H, CH(C*H*$_3)_2$). **^{13}C{^{1}H}-NMR (THF-d_8, 150 MHz, 25 °C) δ [ppm]:** 165.7 (N*C*CH_3), 145.7 (C_6H_3), 145.4 (C_6H_3), 144.4 (C_6H_3), 131.5 ($^+$*C*H), 127.9 (N*C*CH_3), 125.9 (C_6H_3), 123.9 (C_6H_3), 123.6 (C_6H_3), 96.8 (*γ*-*C*H), 58.1 (*C*H$(CH_3)_2$), 29.9 (*C*H$(CH_3)_2$), 29.2 (CH(*C*H$_3)_2$), 28.1 (*C*H$(CH_3)_2$), 25.5 (CH(*C*H$_3)_2$), 25.0 (CH(*C*H$_3)_2$), 24.7 (CH(*C*H$_3)_2$),23.1 (CH(*C*H$_3)_2$, 8.7 (NC*C*H_3). **IR *ν* [cm^{-1}]:** 3120, 3055, 2956, 2928, 2862, 1630, 1550, 1524, 1460, 1437, 1393, 1346, 1319, 1258, 1128, 1175, 1106, 1057, 1020, 937, 852, 793, 758, 638, 527, 498, 442, 395.

LGa (300 mg; 0.616 mmol) was dissolved in 2 mL benzene and $SbCl_3$ (47 mg; 0.201 mmol) in 0.5 mL benzene was added (*in-situ* synthesis of LGaSbGa(Cl)L). The solution was stirred overnight and then filtered in a Schlenk flask with [IPrH][Cl] (23 mg; 0.105 mmol). The suspension was stirred vigorously for 2 h while a purple crystalline precipitate of [[LGa(Cl)]$_2$Sb][IPrH] was formed. The raw product was separated from the mother liquor and washed three times with 0.3 mL benzene. The purple residue was dried in vacuum to yield analytically pure **2**.

2: Yield 102 mg (72 % referred to [IPrH][Cl]). M. p.: 196 °C (dec.). Anal. Calcd. for $C_{69}H_{103}N_6Cl_2Ga_2Sb$: C, 61.45; H, 7.70; N, 6.23. Found: C, 61.6; H, 7.62; N, 6.15 % **^{1}H-NMR (THF-d_8, 600 MHz, 25 °C) δ [ppm]:** 9.23 (s, 1 H, *H*C$^+$), 6.78-7.00 (m, 12 H, C_6H_3), 4.82 (s, 2 H, *γ*-C*H*), 4.67 (sept, 2 H, $^3J_{HH}$ = 6.7 Hz, C*H*$(CH_3)_2$), 3.61 (sept (br), 4 H, C*H*$(CH_3)_2$), 3.17 (sept (br), 4 H, C*H*$(CH_3)_2$), 2.36 (s, 6 H, CC*H*$_3$), 1.61 (d, 12 H, $^3J_{HH}$ = 6.7 Hz, CH(C*H*$_3)_2$), 1.54 (s, 12 H, CC*H*$_3$), 1.10 (d, 12 H, $^3J_{HH}$ = 6.5 Hz, CH(C*H*$_3)_2$), 1.05 (d, 12 H, $^3J_{HH}$ = 6.5 Hz, CH(C*H*$_3)_2$), 0.85-0.87 (m (br), 24 H, CH(C*H*$_3)_2$). **^{13}C{^{1}H}-NMR (THF-d_8, 150 MHz, 25 °C) δ [ppm]:** 165.6 (N*C*CH_3), 146.1 (C_6H_3), 145.2 (C_6H_3), 144.2 (C_6H_3), 133.4 ($^+$*C*H), 127.2 (N*C*CH_3), 125.9 (C_6H_3), 124.0 (C_6H_3), 123.5 (C_6H_3), 97.2 (*γ*-*C*H), 51.7 (*C*H$(CH_3)_2$), 30.1 (*C*H$(CH_3)_2$), 29.4 (CH(*C*H$_3)_2$), 28.2 (*C*H$(CH_3)_2$), 25.5 (CH(*C*H$_3)_2$), 25.1 (CH(*C*H$_3)_2$), 24.8 (CH(*C*H$_3)_2$),23.2 (CH(*C*H$_3)_2$, 8.6 (NC*C*H_3). **IR *ν* [cm^{-1}]:** 3124, 3058, 2961, 2923, 2862, 1630, 1550, 1523, 1461, 1437, 1392, 1346, 1319, 1283, 1260, 1228, 1175, 1139, 1100, 1059, 1018, 937, 852, 792, 758, 638, 592, 527, 442.

Synthesis [LGa(Cl)]$_2$EH (E = As 5, Sb 6)

a) [LGa(Cl)]$_2$E[IPrH] (0.023 mmol) and [H(OEt$_2$)$_2$][BAr$^F_4$] (19 mg; 0.023 mmol) were weighed in a Schlenk flask, cooled to −78°C and 2 mL THF were added. The reaction mixture was slowly warmed to ambient temperature over a period of 2 h and stirred for an additional hour at room temperature. The solvent was removed in vacuum and 6 mL n-hexane were added to the residue. The filtrate was

separated from the white precipitate of [IPrH][BAr^F_4], which was formed immediately, concentrated and stored for 5 days at ambient temperature to yield colorless crystals of **5** and **6**.

b) LGaEGa(Cl)L (0.026 mmol) and [$H(OEt_2)_2$][BAr^F_4] (22 mg; 0.026 mmol) were weighed in a Schlenk flask, cooled to −78°C and 1 mL Et_2O were added (*in situ* synthesis of the supposed cationic species [LGaE(H)Ga(Cl)L]). The reaction mixture was stirred for 10 minutes at -78°C. IPrHCl (6 mg; 0.026 mmol), suspended in 2 mL Et_2O, was added to the colorless reaction solution and stirred for 10 minutes at -78°C. The reactions mixture was warmed up to ambient temperature and stirred for additional 30 minutes. The purification is carried out according to the procedure described before.

c) LGaEGa(Cl)L (0.017 mmol) was weighed in a Schlenk flask, cooled to −78°C and 2 mL THF were added. HCl (0.018 mmol) in Et_2O was added and the reaction mixture was stirred for 10 minutes at -78°C. The colorless solution was warmed up to ambient temperature and stirred for an additional hour at room temperature. The solvent was removed in vacuum and the residue was dissolved in 3 mL n-hexane and stored for 3 days at ambient temperature to yield colorless crystals of **5** and **6**.

5: Yield 19 mg (65 %). M.p.: 186 °C (dec.). Anal. Calcd. for $C_{58}H_{83}N_4Cl_2Ga_2As$: C, 62.11; H, 7.46; N, 5.00. Found: C, 62.3; H, 7.60; N, 5.21 % **^{1}H-NMR (C_6D_6, 300 MHz, 25 °C) δ [ppm]:** 6.96-7.13 (m, 12 H, C_6H_3), 4.81 (s, 2 H, γ-C*H*), 3.58 (sept, 4 H, $^3J_{HH}$ = 6.8 Hz, C*H*(CH_3)$_2$), 3.10 (sept (br), 4 H, C*H*(CH_3)$_2$), 1.48 (s, 12 H, CC*H*$_3$) 1.19 (d, 36 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3$)$_2$), 0.98 (d, 12 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3$)$_2$), −1.32 (s, 1 H, *AsH*).**^{13}C{^{1}H}-NMR (C_6D_6, 150 MHz, 25 °C) δ [ppm]:** 169.1 (N*C*CH_3), 146.7 (*C*$_6H_3$), 142.8 (*C*$_6H_3$), 141.3 (*C*$_6H_3$), 127.7 (*C*$_6H_3$), 125.7 (*C*$_6H_3$), 123.9 (*C*$_6H_3$), 98.0 (γ-*C*H), 29.9 (*C*H(CH_3)$_2$), 28.5 (CH(*C*H_3)$_2$), 28.2 (*C*H(CH_3)$_2$), 25.4 (CH(*C*H_3)$_2$), 24.6 (CH(*C*H_3)$_2$), 24.2 (CH(*C*H_3)$_2$). **IR ν [cm^{-1}]:** 3061, 2961, 2925, 2867, 2078, 1626, 1547, 1526, 1460, 1438, 1383,1345, 1317, 1257, 1178, 1100, 1059, 1020, 937, 865, 797, 757, 722, 638, 616, 535, 461, 394,

6: Yield 16 mg (53 %). M.p.: 181 °C (dec.). Anal. Calcd. for $C_{58}H_{83}N_4Cl_2Ga_2Sb$: C, 59.62; H, 7.16; N, 4.80. Found: C, 60.7; H, 7.08; N, 4.56 % **^{1}H-NMR (C_6D_6, 400 MHz, 25 °C) δ [ppm]:** 6.99-7.20 (m, 12 H, C_6H_3), 4.84 (s, 2 H, γ-C*H*), 3.63 (sept, 4 H, $^3J_{HH}$ = 6.7 Hz, C*H*(CH_3)$_2$), 3.16 (sept, 2 H, $^3J_{HH}$ = 6.7 Hz, C*H*(CH_3)$_2$), 2.99 (sept, 2 H, C*H*(CH_3)$_2$), 1.55 (s, 6 H, CC*H*$_3$), 1.51 (s, 6 H, CC*H*$_3$), 1.28 (d, 6 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3$)$_2$), 1.26 (d, 6 H, $^3J_{HH}$ = 6.7 Hz, CH(C*H*$_3$)$_2$), 1.23-1.18 (m, 18 H, CH(C*H*$_3$)$_2$), 1.16 (d, 6 H, $^3J_{HH}$ = 6.7 Hz, CH(C*H*$_3$)$_2$), 0.98 (d, 6 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3$)$_2$), 0.96 (d, 6 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3$)$_2$), −3.59 (s, 1 H, Sb*H*).**^{13}C{^{1}H}-NMR (C_6D_6, 150 MHz, 25 °C) δ [ppm]:** 168.7 (N*C*CH_3), 168.6 (N*C*CH_3), 146.4 (*C*$_6H_3$), 146.4 (*C*$_6H_3$), 142.5 (*C*$_6H_3$), 142.5 (*C*$_6H_3$), 141.2 (*C*$_6H_3$), 141.1 (*C*$_6H_3$), 127.5 (*C*$_6H_3$), 127.4 (*C*$_6H_3$), 125.5 (*C*$_6H_3$), 125.4 (*C*$_6H_3$) 123.7 (*C*$_6H_3$),) 123.5 (*C*$_6H_3$), 97.9 (γ-*C*H), 30.0 (*C*H(CH_3)$_2$), 29.8 (*C*H(CH_3)$_2$), 28.3 (CH(*C*H_3)$_2$), 28.2 (CH(*C*H_3)$_2$), 28.0 (*C*H(CH_3)$_2$), 28.0 (*C*H(CH_3)$_2$), 25.0 (CH(*C*H_3)$_2$), 25.0 (CH(*C*H_3)$_2$), 24.5 (CH(*C*H_3)$_2$), 24.3 (CH(*C*H_3)$_2$), 24.3 (CH(*C*H_3)$_2$), 24.0 (CH(*C*H_3)$_2$), 23.9 (CH(*C*H_3)$_2$), 23.7 (CH(*C*H_3)$_2$). **IR ν [cm^{-1}]:** 3061, 2959, 2925, 2867, 1858, 1621, 1547, 1521, 1460, 1437, 1382, 1316, 1257, 1175, 1099, 1057, 1018, 935, 863, 796, 757, 710, 634, 528, 436.

Synthesis LGa(Cl)E(Me)Ga(I)L (As 7, Sb 8)

LGaEGa(Cl)L (0.029 mmol) was dissolved in 2 mL toluene, cooled to −78°C and methyl iodide (4.2 mg; 1.84 µL; 0.029 mmol) in 0.5 mL toluene was added. The reaction mixture was warmed up to ambient temperature and the solvent was removed. The residue was dissolved in 3 mL n-hexane, concentrated until crystallization started and stored for 2 days at ambient temperature to yield colorless crystals of **7** and **8**.

7: Yield 18 mg (51 %). M.p.: 209 °C (dec.). Anal. Calcd. for $C_{59}H_{85}N_4ClGa_2IAs$: C, 57.75; H, 6.98; N, 4.57. Found: C, 57.6; H, 6.82; N, 4.51 %. **^{1}H-NMR (C_6D_6, 300 MHz, 25 °C) δ [ppm]:** .6.89-7.14 (m, 12 H, C_6H_3), 5.04 (s, 1 H, γ-C*H*), 4.87 (s, 1 H, γ-C*H*), 3.83 (sept, 2 H, $^3J_{HH}$ = 6.7 Hz, C*H*(CH_3)$_2$), 3.86 (sept, 2 H, $^3J_{HH}$ = 6.7 Hz, C*H*(CH_3)$_2$), 3.14-3.24 (m, 4 H, C*H*(CH_3)$_2$), 1.50 (s, 6 H, CC*H*$_3$), 1.49 (s, 6 H, CC*H*$_3$), 1.37-1.41 (m, 9 H, CH(C*H*$_3$)$_2$), 1.16-1.23 (m, 27 H, CH(C*H*$_3$)$_2$), 0.95-0.99 (m, 12 H, CH(C*H*$_3$)$_2$), 0.04 (s, 3 H, *C*H$_3$). **^{13}C{^{1}H}-NMR (C_6D_6, 150 MHz, 25 °C) δ [ppm]:** 169.4 (N*C*CH$_3$), 169.0 (N*C*CH$_3$), 146.3 (*C*$_6$H$_3$), 145.9 (*C*$_6$H$_3$), 143.2 (*C*$_6$H$_3$), 142.7 (*C*$_6$H$_3$), 127.4 (*C*$_6$H$_3$), 127.4 (*C*$_6$H$_3$), 125.6 (*C*$_6$H$_3$), 125.5 (*C*$_6$H$_3$), 123.8 (*C*$_6$H$_3$), 123.5 (*C*$_6$H$_3$), 99.2 (γ-*C*H), 98.2 (γ-*C*H), 29.6 (*C*H(CH_3)$_2$), 29.5 (*C*H(CH_3)$_2$), 28.8 (*C*H(CH_3)$_2$), 28.2 (*C*H(CH_3)$_2$), 28.2 (CH(*C*H$_3$)$_2$), 25.2 (CH(*C*H$_3$)$_2$), 25.1 (CH(*C*H$_3$)$_2$), 24.7 (CH(*C*H$_3$)$_2$), 24.6 (C(*C*H$_3$)$_2$), 24.4 (C(*C*H$_3$)$_2$), 24.1 (CH(*C*H$_3$)$_2$), 24.0 (CH(*C*H$_3$)$_2$), 23.8 (CH(*C*H$_3$)$_2$), 23.8 (CH(*C*H$_3$)$_2$), −8.5 (As*C*H$_3$). **IR $\tilde{\nu}$ [cm^{-1}]:** 3041, 2961, 2926, 2867, 1523, 1458, 1437, 1386, 1316, 1206, 1177, 1095, 1056, 1018, 937, 862, 796, 757, 723, 707, 661, 636, 490, 442, 398.

8: Yield 15 mg (42 %). M.p.: 207 °C (dec.). Anal. Calcd. for $C_{59}H_{85}N_4ClGa_2ISb$: C, 55.63; H, 6.73; N, 4.40. Found: C, 55.7 H, 6.73; N, 4.38%. **^{1}H-NMR (C_6D_6, 400 MHz, 25 °C) δ [ppm]:** 6.93-7.14 (m, 12 H, C_6H_3), 5.06 (s, 1 H, γ-C*H*), 4.90 (s, 1 H, γ-C*H*), 4.05 (sept, 1 H, $^3J_{HH}$ = 6.7 Hz, C*H*(CH_3)$_2$), 3.86 (sept, 1 H, $^3J_{HH}$ = 6.7 Hz, C*H*(CH_3)$_2$), 3.71 (sept, 1 H, $^3J_{HH}$ = 6.7 Hz, C*H*(CH_3)$_2$), 3.54 (sept, 1 H, $^3J_{HH}$ = 6.7 Hz, C*H*(CH_3)$_2$), 3.14-3.31 (m, 4 H, C*H*(CH_3)$_2$), 1.56 (d, 3 H, $^3J_{HH}$ = 6.7 Hz, CH(C*H*$_3$)$_2$), 1.51 (d, 3 H, $^3J_{HH}$ = 6.7 Hz, CH(C*H*$_3$)$_2$), 1.49 (s, 12 H, CC*H*$_3$), 1.18-1.32 (m, 30 H, CH(C*H*$_3$)$_2$), 0.94-0.98 (m, 12 H, CH(C*H*$_3$)$_2$), −0.35 (s, 3 H, *C*H$_3$). **^{13}C{^{1}H}-NMR (C_6D_6, 150 MHz, 25 °C) δ [ppm]:** 169.2 (N*C*CH$_3$), 168.9 (N*C*CH$_3$), 168.6 (N*C*CH$_3$), 146.7 (*C*$_6$H$_3$), 146.3 (*C*$_6$H$_3$), 146.3 (*C*$_6$H$_3$), 146.1 (*C*$_6$H$_3$), 143.5 (*C*$_6$H$_3$), 143.3 (*C*$_6$H$_3$), 143.2 (*C*$_6$H$_3$), 143.1 (*C*$_6$H$_3$), 142.5 (*C*$_6$H$_3$), 141.8 (*C*$_6$H$_3$), 141.6 (*C*$_6$H$_3$), 141.4 (*C*$_6$H$_3$), 127.6 (*C*$_6$H$_3$), 127.5 (*C*$_6$H$_3$), 127.5 (*C*$_6$H$_3$), 125.8 (*C*$_6$H$_3$), 125.6 (*C*$_6$H$_3$), 125.5 (*C*$_6$H$_3$), 123.8 (*C*$_6$H$_3$), 123.6 (*C*$_6$H$_3$), 99.3 (γ-*C*H), 98.5 (γ-*C*H), 31.1 (CH(*C*H$_3$)$_2$), 30.2 (*C*H(CH_3)$_2$), 30.2 (*C*H(CH_3)$_2$), 29.3 (*C*H(CH_3)$_2$), 29.2 (CH(*C*H$_3$)$_2$), 29.2 (CH(*C*H$_3$)$_2$), 28.9 (*C*H(CH_3)$_2$), 28.4 (*C*H(CH_3)$_2$), 28.3 (*C*H(CH_3)$_2$), 28.1 (CH(*C*H$_3$)$_2$), 28.0 (*C*H(CH_3)$_2$), 25.3 (CH(*C*H$_3$)$_2$), 25.1 (CH(*C*H$_3$)$_2$), 25.0 (CH(*C*H$_3$)$_2$), 24.9 (CH(*C*H$_3$)$_2$), 24.6 (CH(*C*H$_3$)$_2$), 24.5 (CH(*C*H$_3$)$_2$), 24.4 (CH(*C*H$_3$)$_2$), 24.4 (CH(*C*H$_3$)$_2$), 24.3 (CH(*C*H$_3$)$_2$), 24.3 (C(*C*H$_3$)$_2$), 24.1 (C(*C*H$_3$)$_2$), 24.1 (C(*C*H$_3$)$_2$), 24.1 (C(*C*H$_3$)$_2$), 23.9 (CH(*C*H$_3$)$_2$), 23.6 (CH(*C*H$_3$)$_2$), 23.6 (CH(*C*H$_3$)$_2$), −28.2 (Sb*C*H$_3$). **IR $\tilde{\nu}$ [cm^{-1}]:** 3060, 2961, 2925, 2866, 1551, 1521, 1460, 1435, 1383, 1314, 1287, 1258, 1195, 1175, 1098, 1057, 1017, 937, 859, 794, 758, 707, 638, 619, 529, 500, 437, 419.

Synthesis [LGa(Cl)]$_2$EMe (As 9, Sb 10)

[[LGa(Cl)]$_2$E[IPrH] (0.029 mmol) was dissolved in 2 mL THF, cooled to −78°C and methyl iodide (4.2 mg; 1.84 µL; 0.029 mmol) in 0.5 mL THF was added. The reaction mixture was warmed up to

ambient temperature and the solvent was removed. 2 mL toluene were added to the residue and white precipitate of [IPrH][I] was formed. The mother liquor was separated and the solvent was removed. The residue was dissolved in 5 mL n-hexane, concentrated until crystallization started and stored for 6 days at 0 °C to yield colorless crystals of **7** and **8**.

9: Yield 21 mg (64 %). M.p.: 195 °C (dec.). Anal. Calcd. for $C_{59}H_{85}N_4Cl_2Ga_2As$: C, 62.40; H, 7.54; N, 4.93. Found: C, 62.5; H, 7.56; N, 4.99 %. **^{1}H-NMR (C_6D_6, 400 MHz, 25 °C) δ [ppm]:** 6.96-7.14 (m, 12 H, C_6H_3), 4.88 (s, 2 H, γ-C*H*), 3.71 (sept (br), 4 H, C*H*$(CH_3)_2$), 3.18 (sept, 4 H, $^3J_{HH}$ = 6.8 Hz, C*H*$(CH_3)_2$), 1.48 (s, 12 H, CC*H*$_3$), 1.33 (d, 12 H, $^3J_{HH}$ = 6.6 Hz, CH(C*H*$_3)_2$), 1.22 (d, 12 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3)_2$), 1.20 (d, 12 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3)_2$), 0.98 (d, 12 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3)_2$), 0.04 (s, 3 H, *C*H$_3$). **^{13}C{^{1}H}-NMR (C_6D_6, 150 MHz, 25 °C) δ [ppm]:** 169.0 (N*C*CH$_3$), 146.1 (*C*$_6$H$_3$), 142.9 (*C*$_6$H$_3$), 142.6 (*C*$_6$H$_3$), 127.4 (*C*$_6$H$_3$), 125.3 (*C*$_6$H$_3$), 123.6 (*C*$_6$H$_3$), 98.5 (γ-*C*H), 29.5 (*C*H$(CH_3)_2$), 28.3 (*C*H$(CH_3)_2$), 27.8 (CH(*C*H$_3)_2$), 25.0 (CH(*C*H$_3)_2$), 24.5 (CH(*C*H$_3)_2$), 24.2 (C(*C*H$_3)_2$), 23.9 (CH(*C*H$_3)_2$), −10.2 (As*C*H$_3$). **IR ν [cm^{-1}]:** 3038, 2958, 2925, 2867, 1551, 1524, 1460, 1435, 1383, 1316, 1287, 1253, 1177, 1100, 1057, 1018, 935, 860, 794, 758, 707, 639, 532, 448.

10: Yield 16 mg (47 %). M.p.: 192 °C (dec.). Anal. Calcd. for $C_{59}H_{85}N_4Cl_2Ga_2Sb$: C, 59.93; H, 7.25; N, 4.74. Found: C, 60.8; H, 7.06; N, 4.47 %**^{1}H-NMR (C_6D_6, 400 MHz, 25 °C) δ [ppm]:** 6.93-7.15 (m, 12 H, C_6H_3), 4.91 (s, 2 H, γ-C*H*), 3.88 (sept, 2 H, $^3J_{HH}$ = 6.8 Hz, C*H*$(CH_3)_2$), 3.58 (sept, 2 H, $^3J_{HH}$ = 6.8 Hz, C*H*$(CH_3)_2$), 3.24 (sept, 2 H, $^3J_{HH}$ = 6.8 Hz, C*H*$(CH_3)_2$), 3.16 (sept, 2 H, $^3J_{HH}$ = 6.8 Hz, C*H*$(CH_3)_2$), 1.48-1.50 (m, 18 H, CC*H*$_3$, CH(C*H*$_3)_2$), 1.29 (d, 6 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3)_2$), 1.19-1.23 (m, 24 H, CH(C*H*$_3)_2$), 0.97 (d, 12 H, $^3J_{HH}$ = 6.8 Hz, CH(C*H*$_3)_2$), −0.32 (s, 3 H, *C*H$_3$). **^{13}C{^{1}H}-NMR (C_6D_6, 150 MHz, 25 °C) δ [ppm]:** 168.9 (N*C*CH$_3$), 168.7 (N*C*CH$_3$), 146.4 (*C*$_6$H$_3$), 146.2 (*C*$_6$H$_3$), 143.1 (*C*$_6$H$_3$), 143.1 (*C*$_6$H$_3$), 142.1 (*C*$_6$H$_3$), 141.5 (*C*$_6$H$_3$), 127.6 (*C*$_6$H$_3$), 127.5 (*C*$_6$H$_3$), 125.5 (*C*$_6$H$_3$), 125.3 (*C*$_6$H$_3$), 123.7 (*C*$_6$H$_3$), 123.5 (*C*$_6$H$_3$), 98.7 (γ-*C*H), 30.1 (*C*H$(CH_3)_2$), 29.3 (*C*H$(CH_3)_2$), 28.8 (CH(*C*H$_3)_2$), 28.3 (*C*H$(CH_3)_2$), 28.0 (*C*H$(CH_3)_2$), 27.7 (CH(*C*H$_3)_2$), 25.2 (CH(*C*H$_3)_2$), 24.8 (CH(*C*H$_3)_2$), 24.6 (CH(*C*H$_3)_2$), 24.4 (CH(*C*H$_3)_2$), 24.1 (C(*C*H$_3)_2$), 24.1 (C(*C*H$_3)_2$), 23.9 (CH(*C*H$_3)_2$), 23.5 (CH(*C*H$_3)_2$), −30.0 (Sb*C*H$_3$),. **IR ν [cm^{-1}]:** 3059, 2961, 2928, 2867, 1551, 1523, 1460, 1435, 1382, 1316, 1287, 1258, 1195, 1177, 1093, 1016, 937, 862, 792, 757, 705, 638, 530, 500, 451, 401.

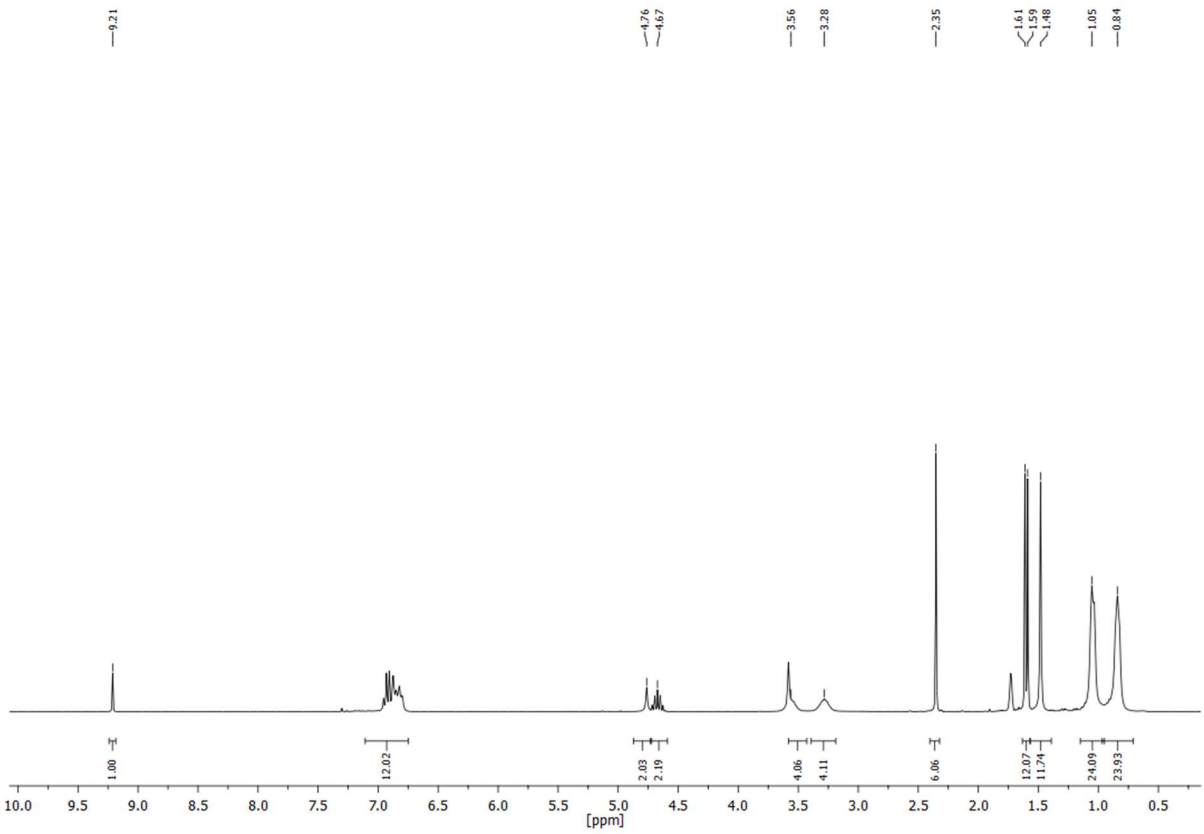

Fig. S1. ^{1}H NMR spectrum of [[LGa(Cl)]$_2$As][IPrH] (**1**) in THF-d_8.

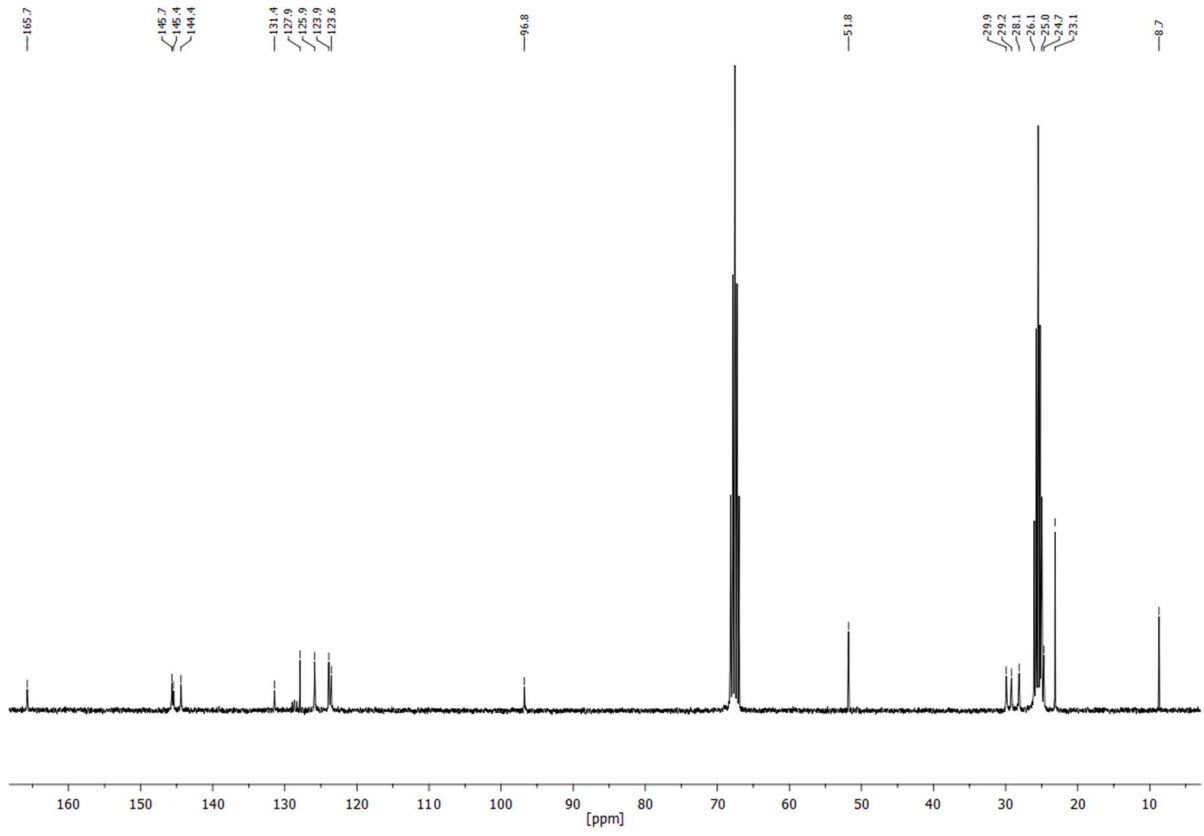

Fig. S2. ^{13}C NMR spectrum of [[LGa(Cl)]$_2$As][IPrH] (**1**) in THF-d_8.

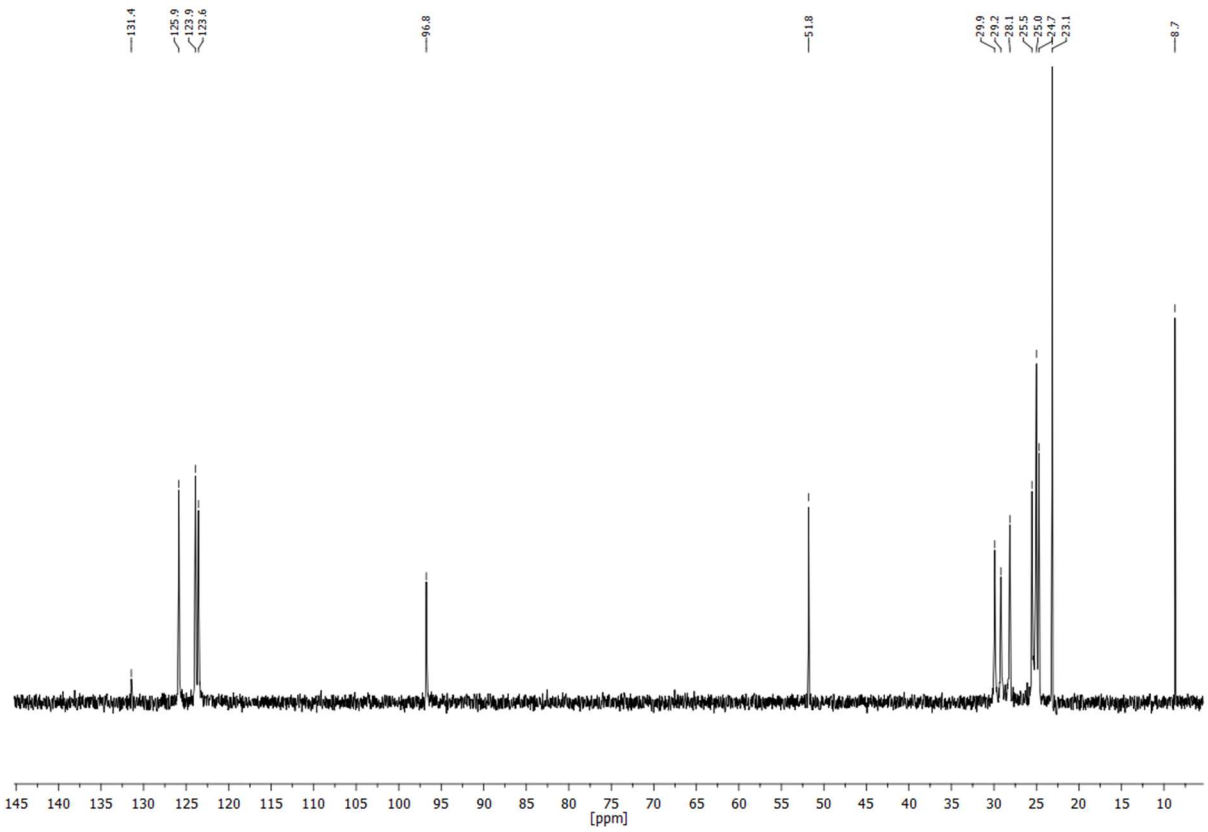

Fig. S3. DEPT135 spectrum of [[LGa(Cl)]$_2$As][IPrH] (**1**) in THF-d_8.

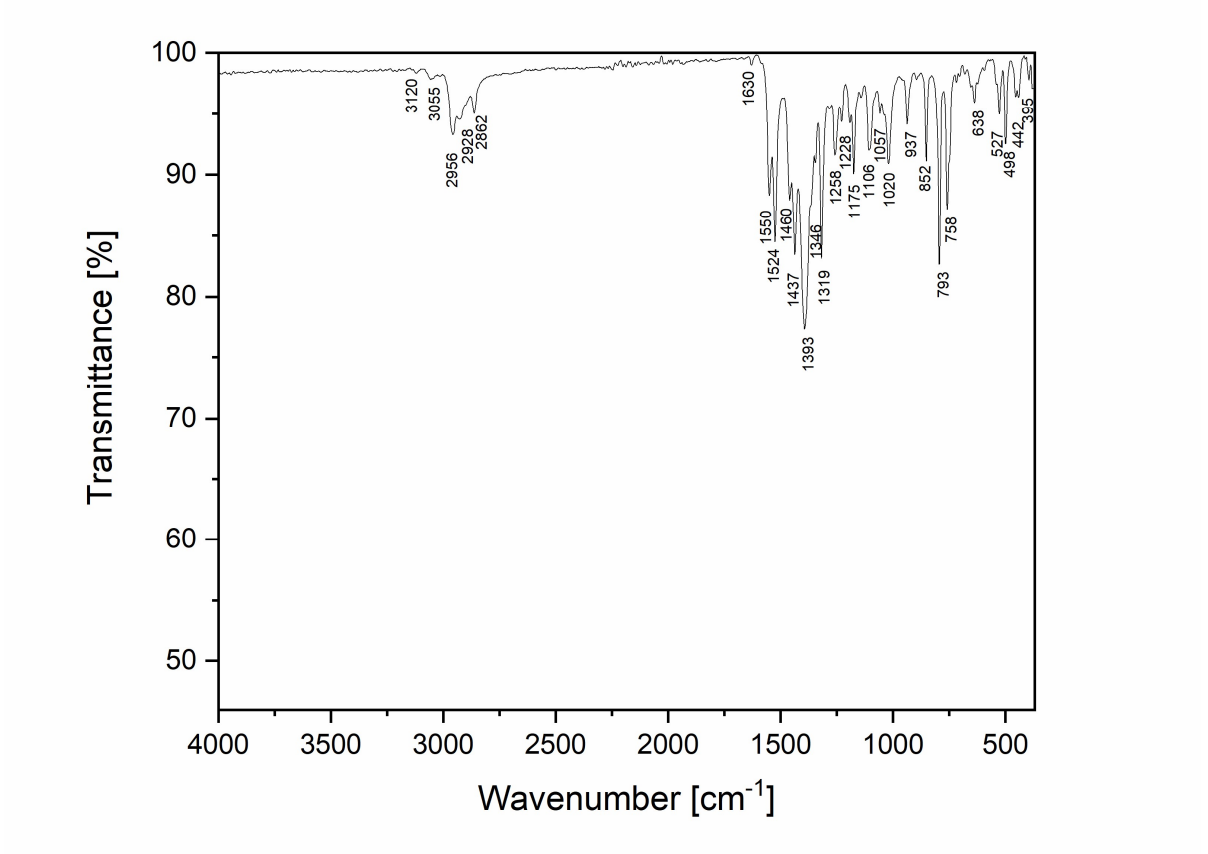

Fig. S4. ATR-IR spectrum of [[LGa(Cl)]$_2$As][IPrH] (**1**).

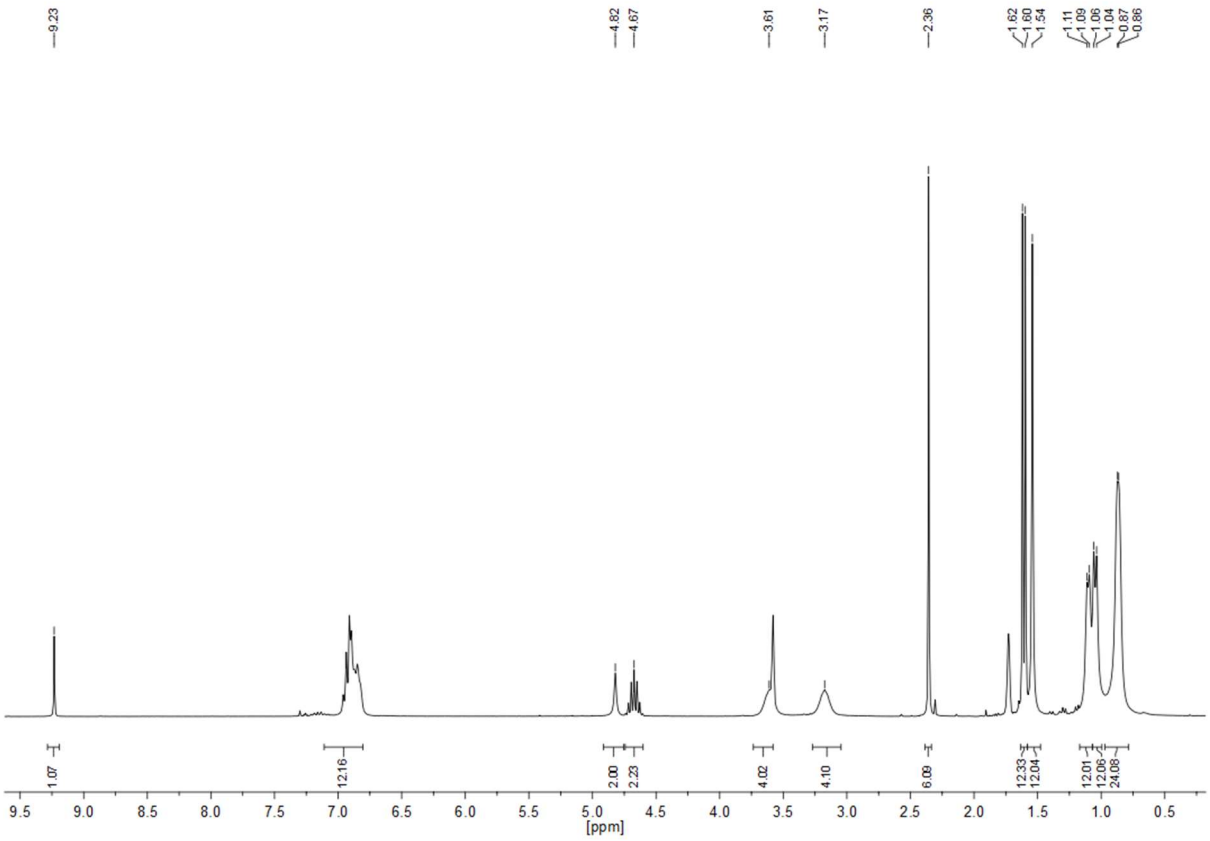

Fig. S5. ^{1}H NMR spectrum of [[LGa(Cl)]$_2$Sb][IPrH] (**2**) in THF-d_8.

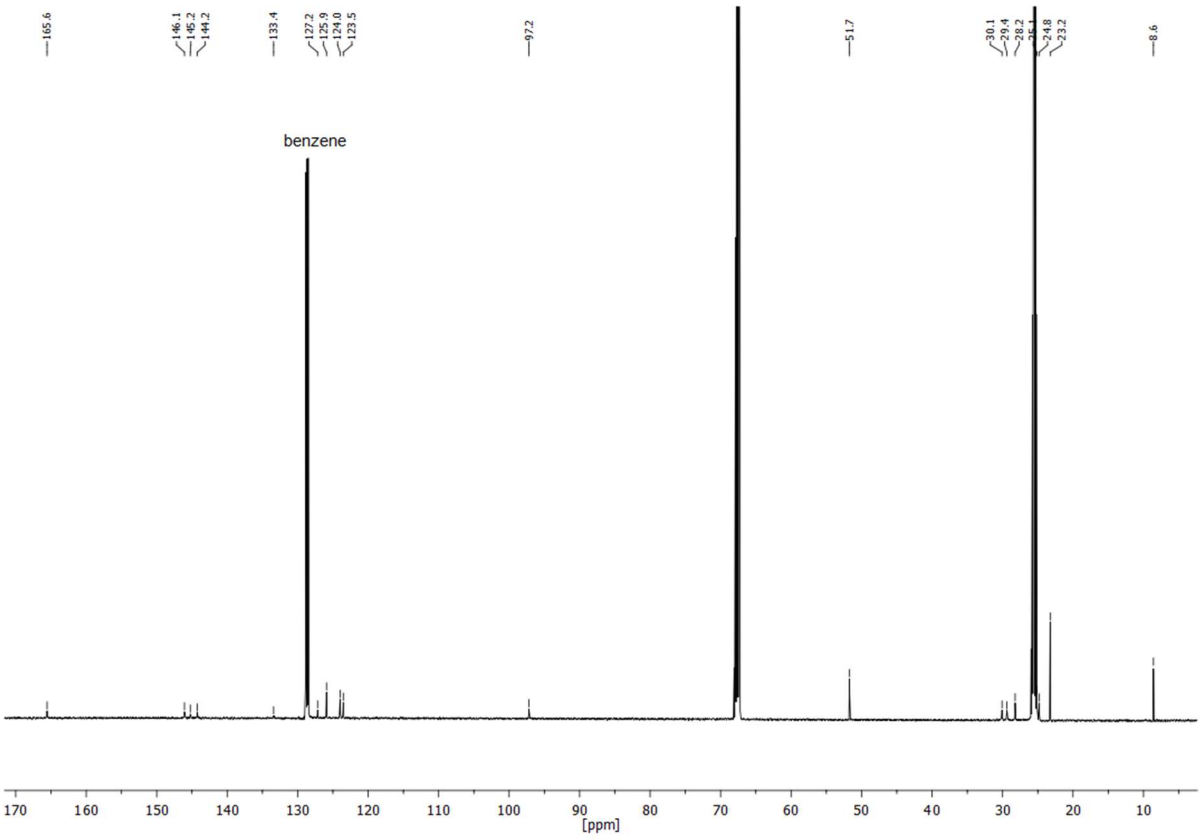

Fig. S6. ^{13}C NMR spectrum of [[LGa(Cl)]$_2$Sb][IPrH] (**2**) in THF-d_8.

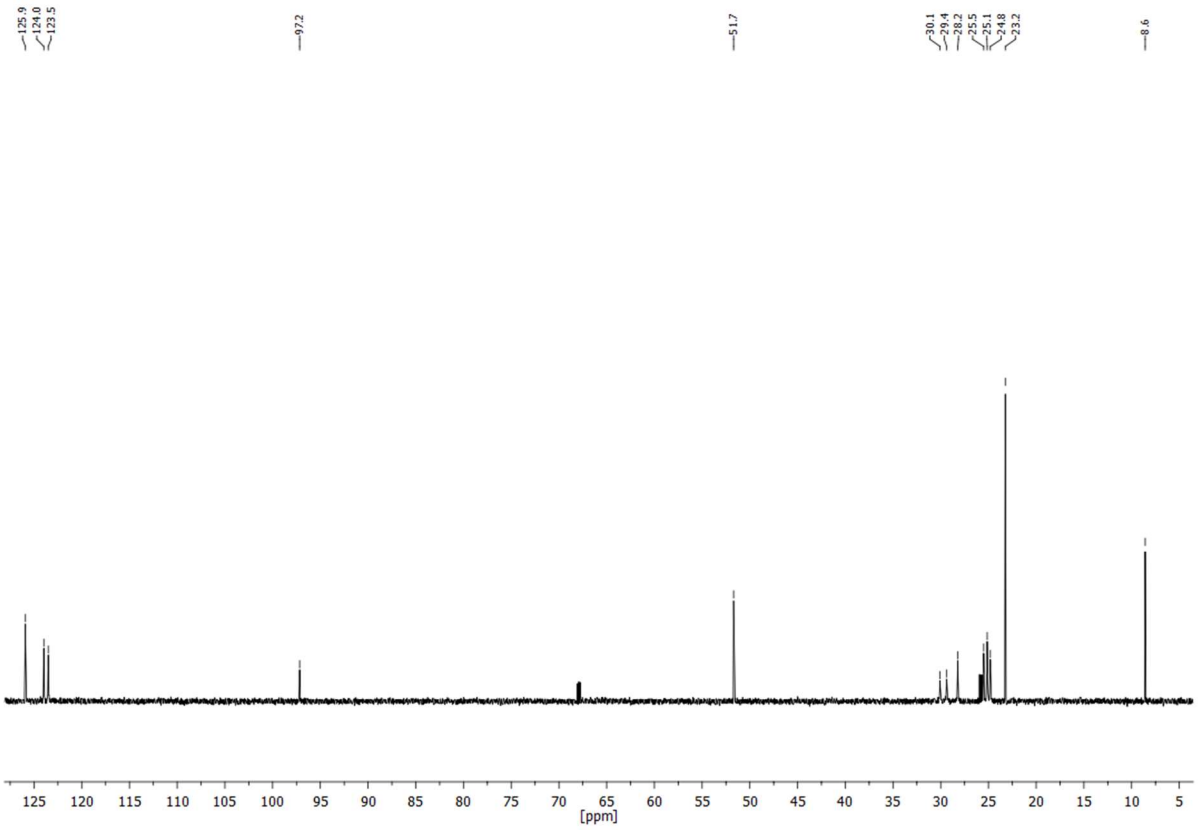

Fig. S7. DEPT135 spectrum of [[LGa(Cl)]$_2$Sb][IPrH] (**2**) in THF-d_8.

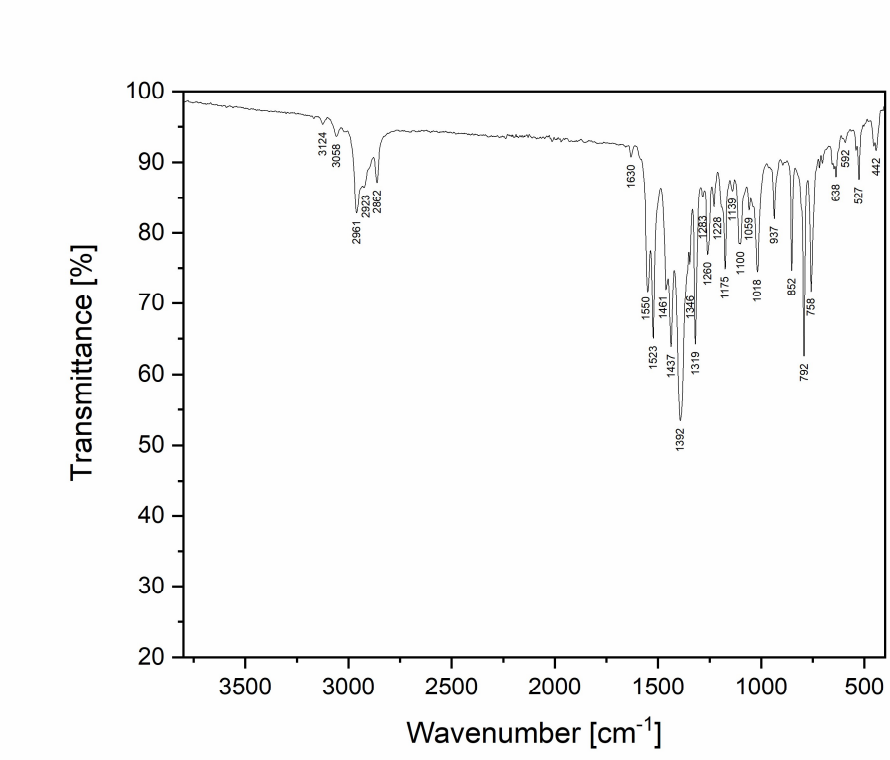

Fig. S8. ATR-IR spectrum of [[LGa(Cl)]$_2$Sb][IPrH] (**2**).

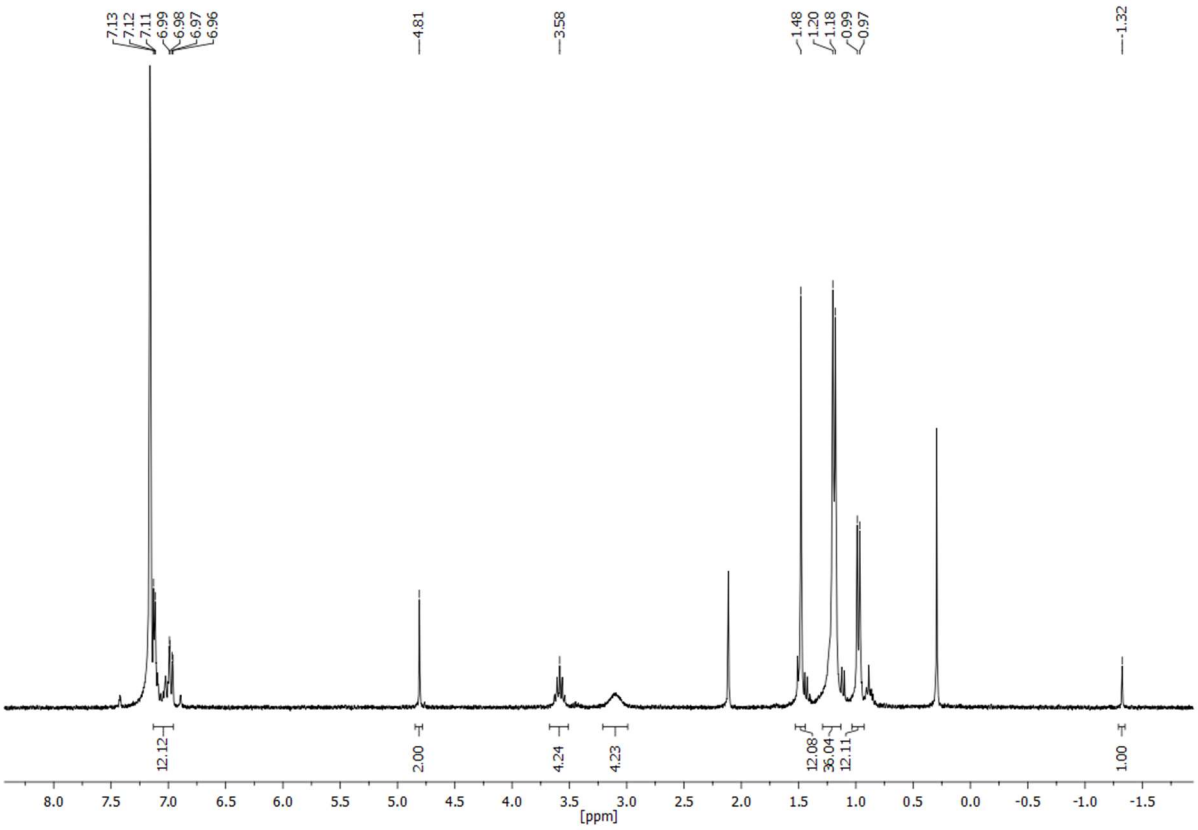

Fig. S9. ^{1}H NMR spectrum of [LGa(Cl)]$_2$AsH (**5**) in C_6D_6.

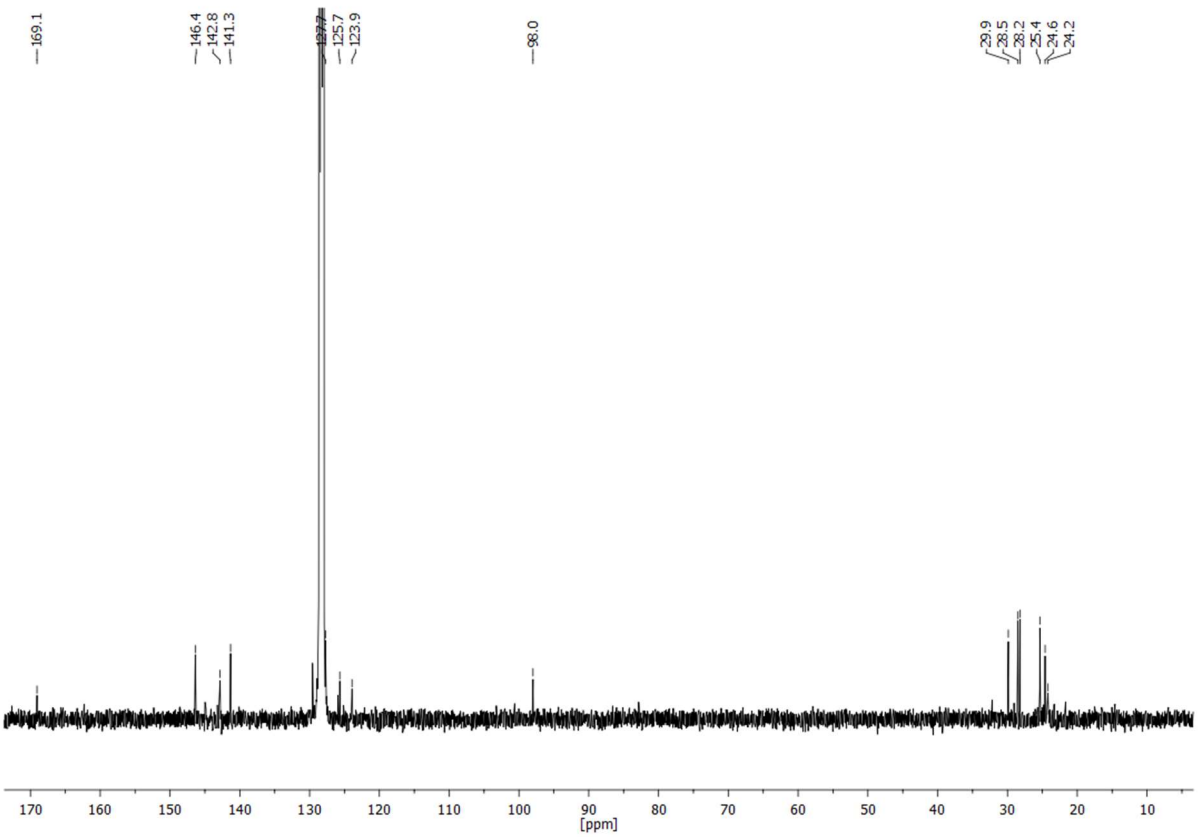

Fig. S10. ^{13}C NMR spectrum of [LGa(Cl)]$_2$AsH (**5**) in C_6D_6.

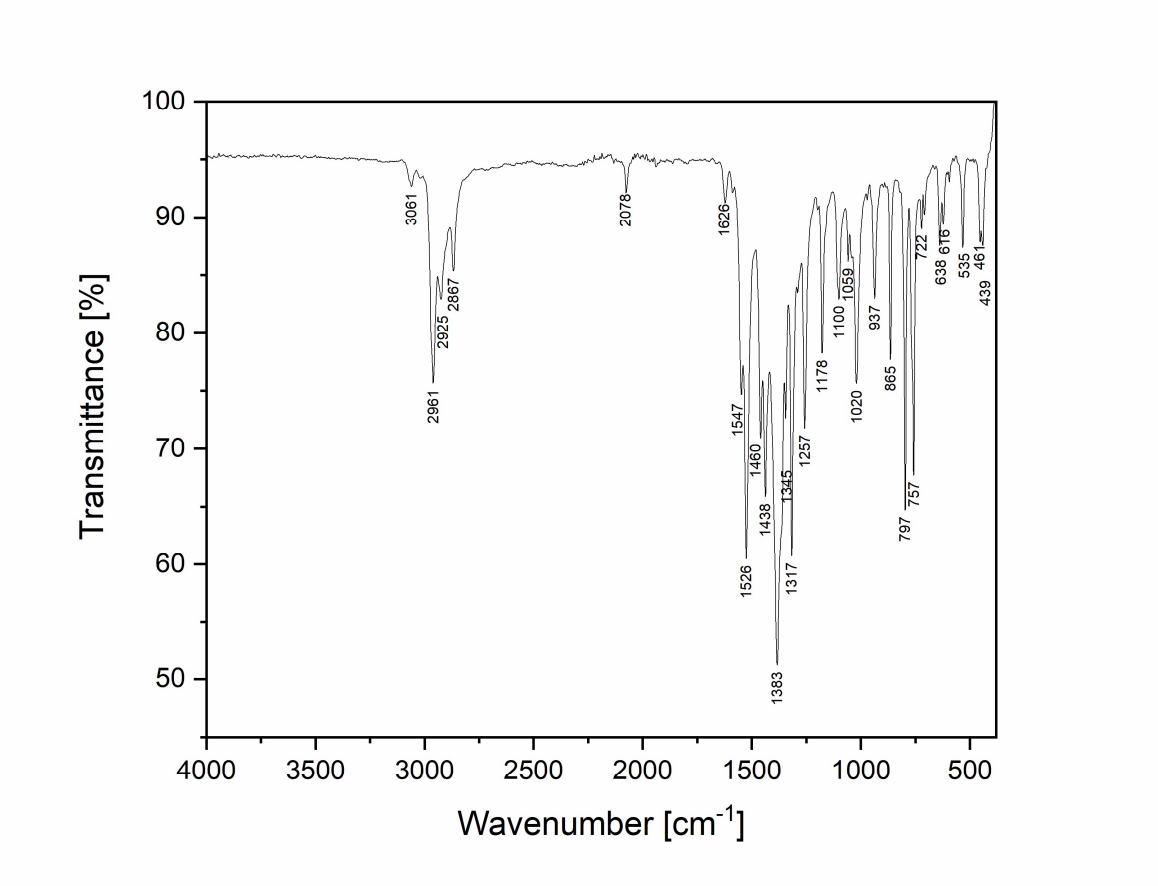

Fig. S11. ATR IR spectrum of $[LGa(Cl)]_2AsH$ (**5**).

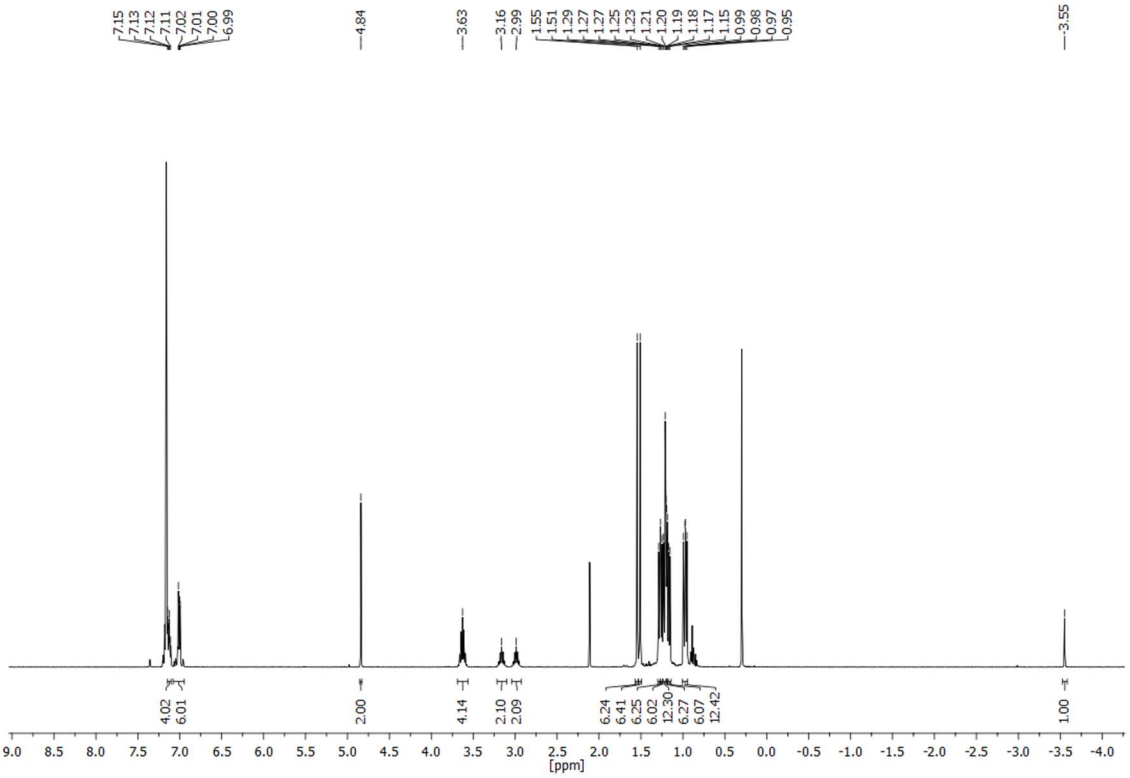

Fig. S12. ^1H NMR spectrum of $[LGa(Cl)]_2SbH$ (**6**) in C_6D_6.

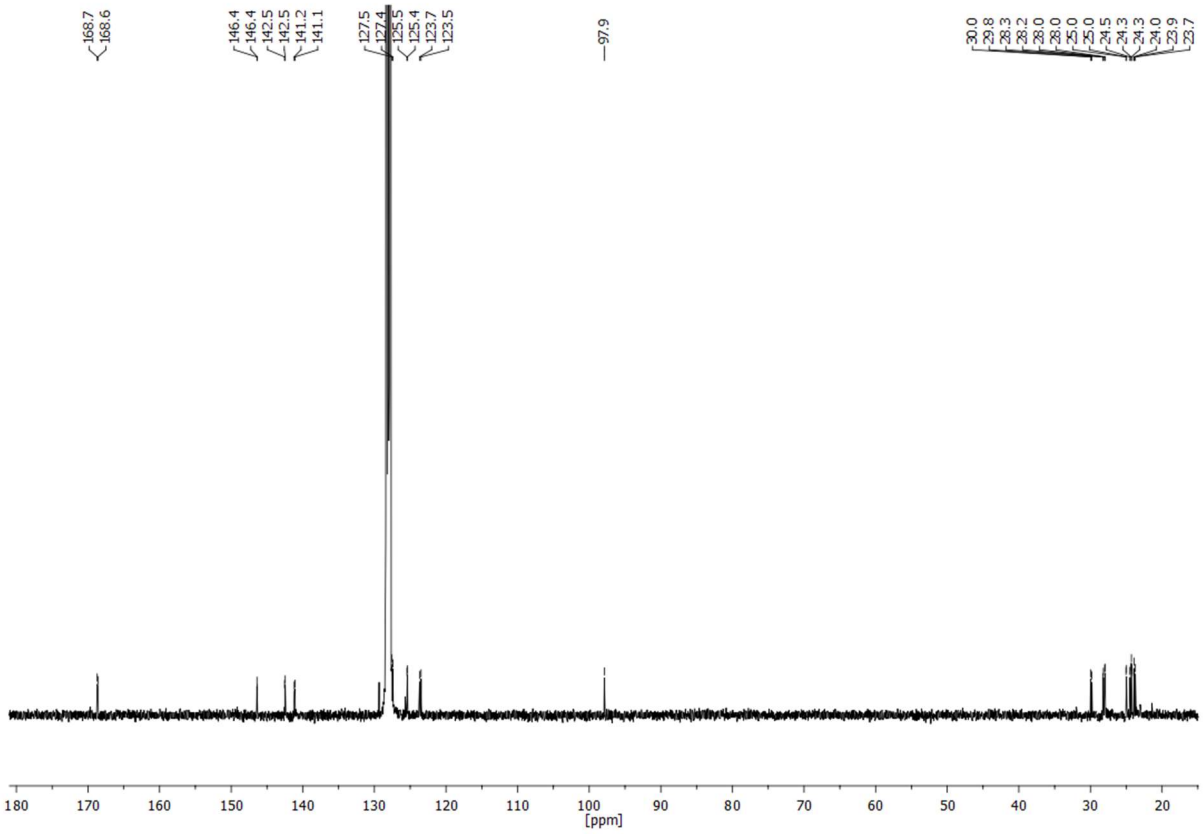

Fig. S13. ^{13}C NMR spectrum of $[LGa(Cl)]_2SbH$ (**6**) in C_6D_6.

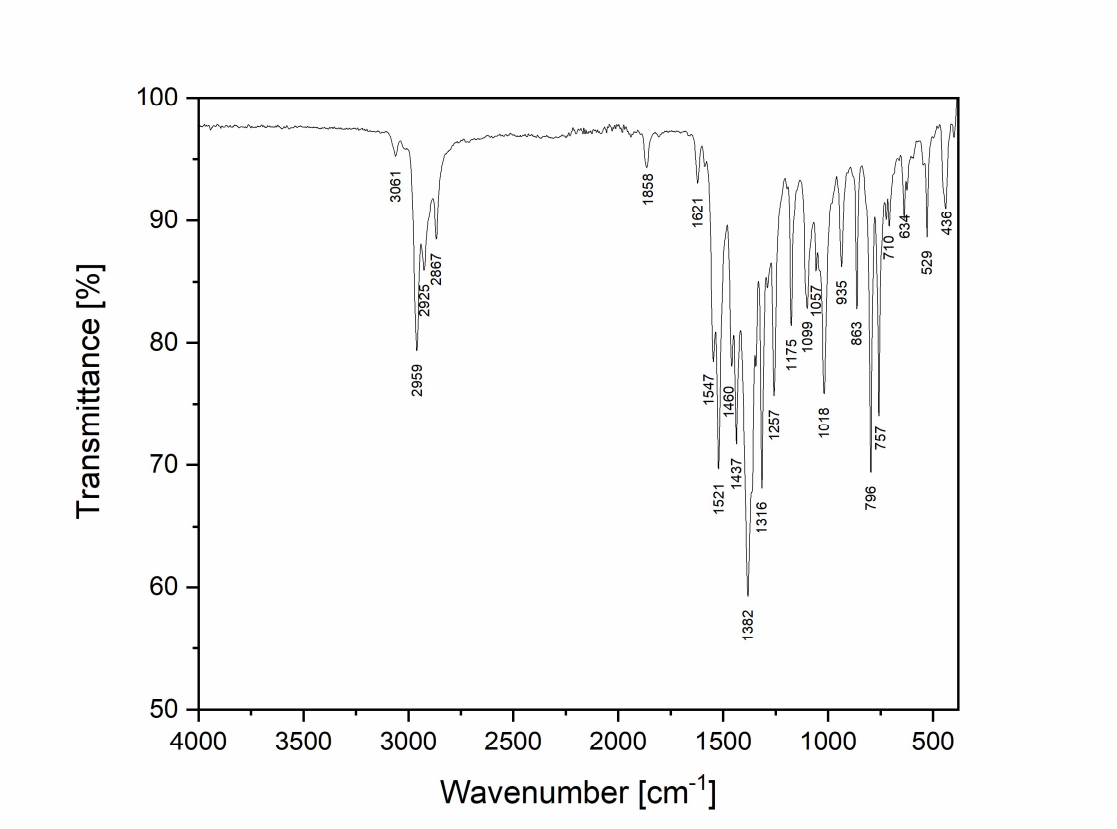

Fig. S14. ATR IR spectrum of $[LGa(Cl)]_2SbH$ (**6**).

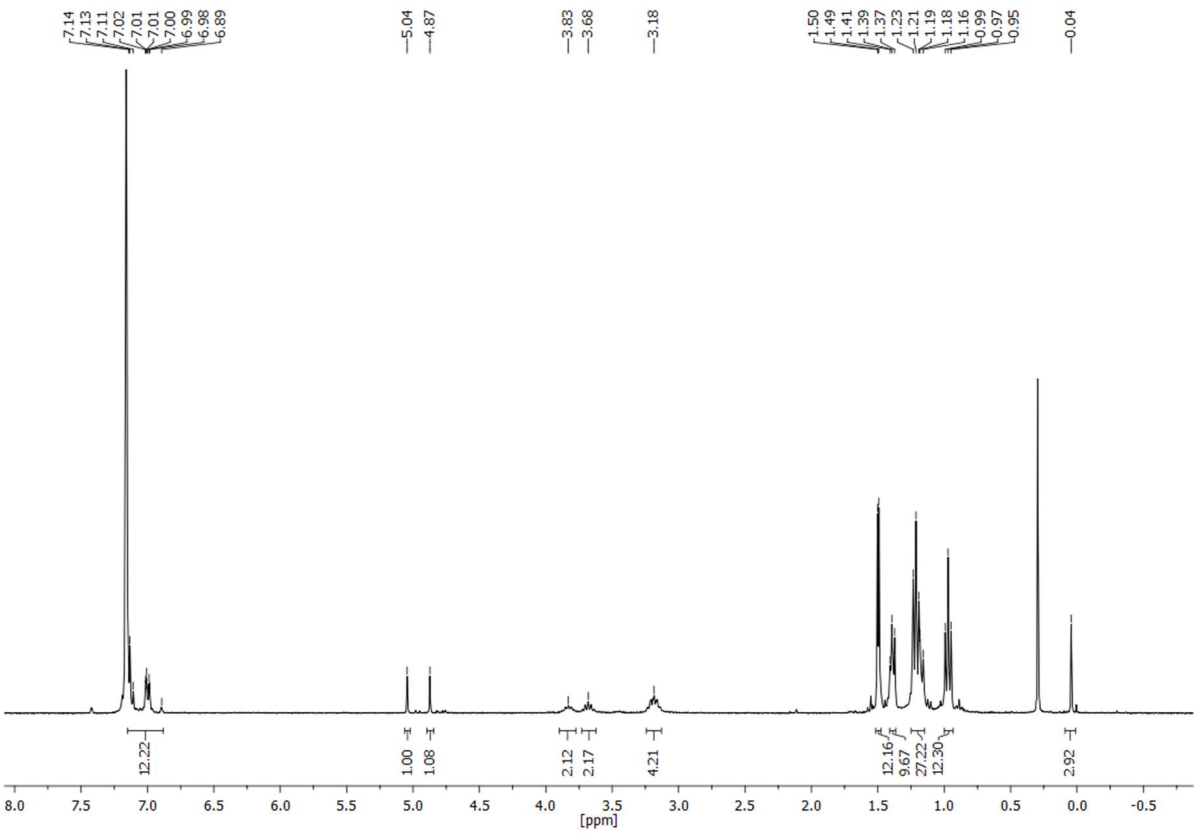

Fig. S15. ^{1}H NMR spectrum of LGa(Cl)As(Me)Ga(I)L (**7**) in C_6D_6.

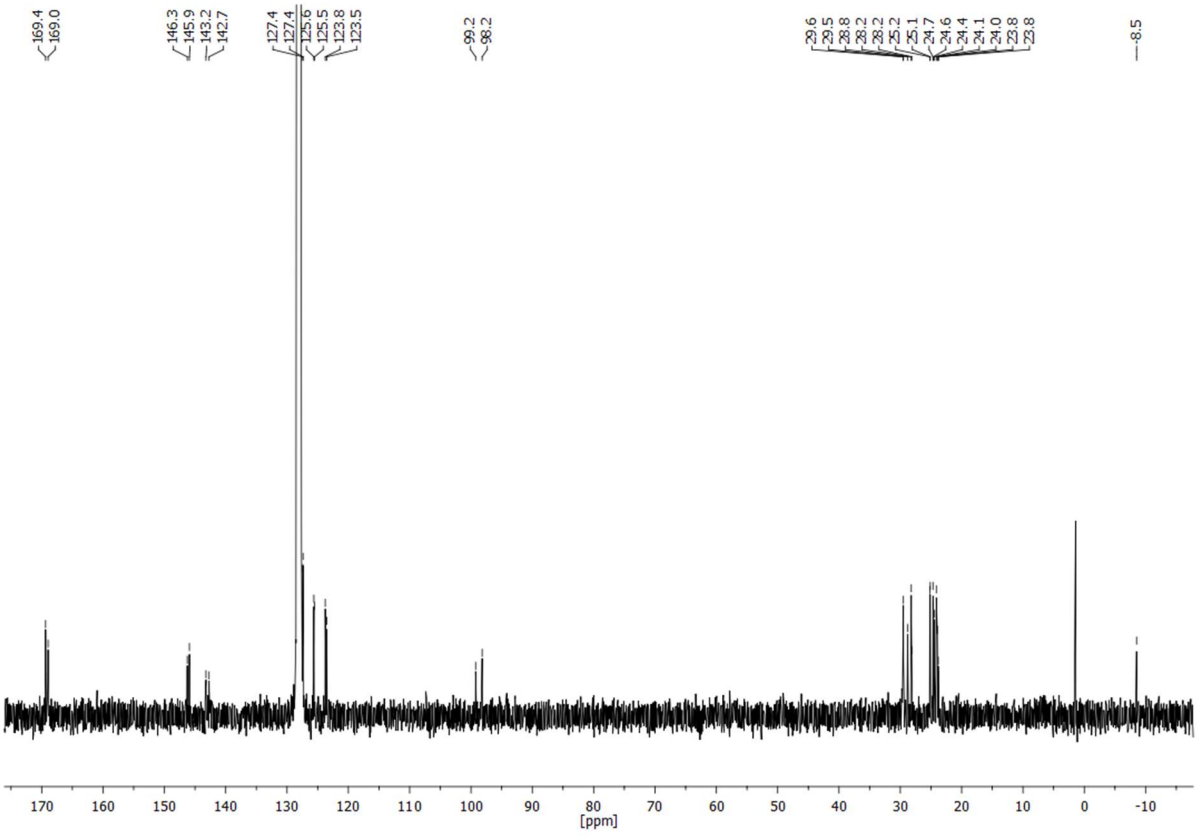

Fig. S16. ^{13}C NMR spectrum of LGa(Cl)As(Me)Ga(I)L (**7**) in C_6D_6.

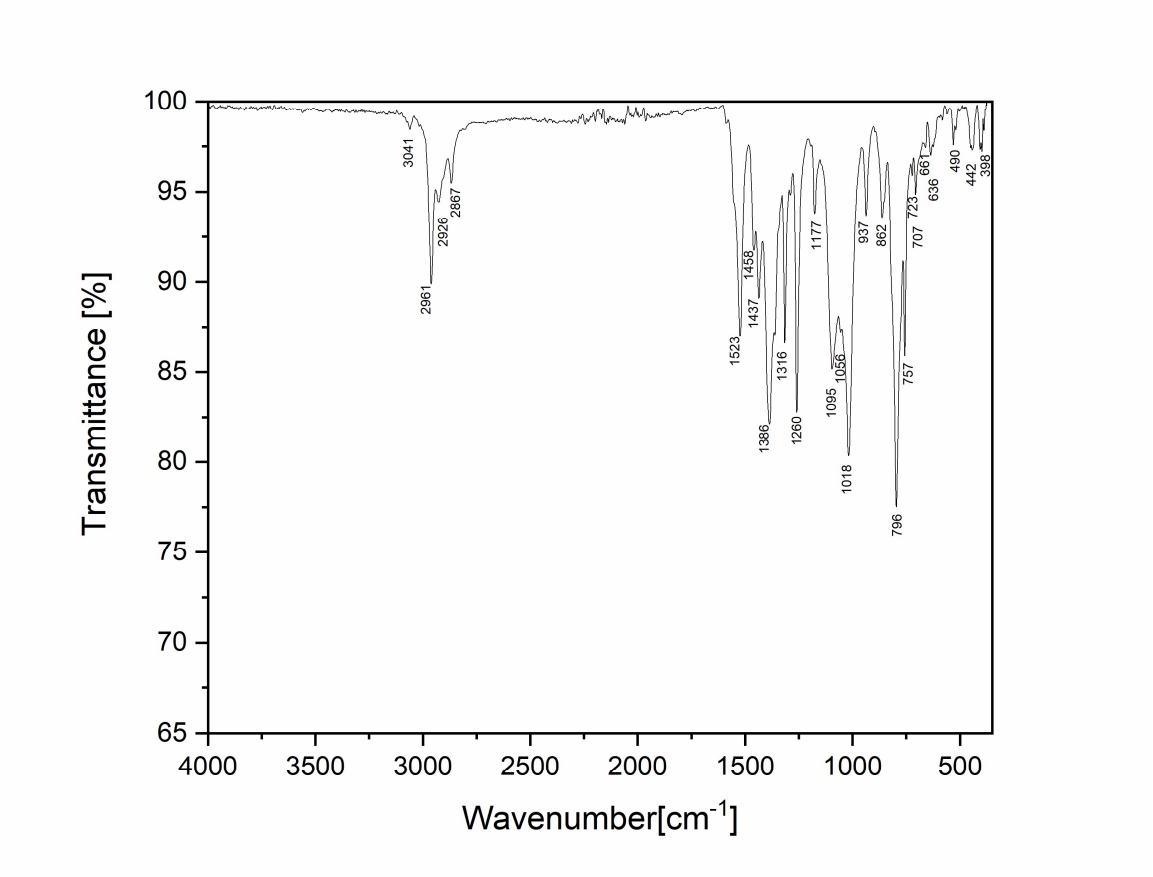

Fig. S17. ATR-IR spectrum of LGa(Cl)As(Me)Ga(I)L (**7**).

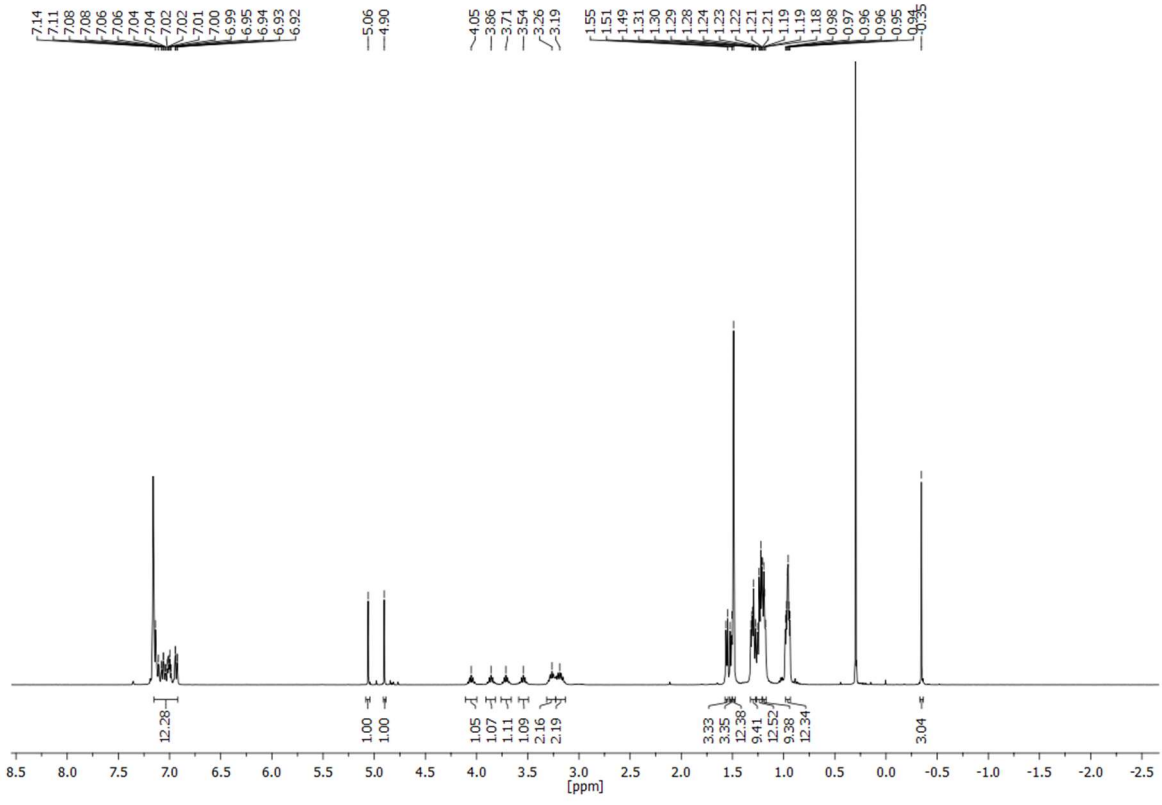

Fig. S18. ^{1}H NMR spectrum of LGa(Cl)Sb(Me)Ga(I)L (**8**) in C_6D_6.

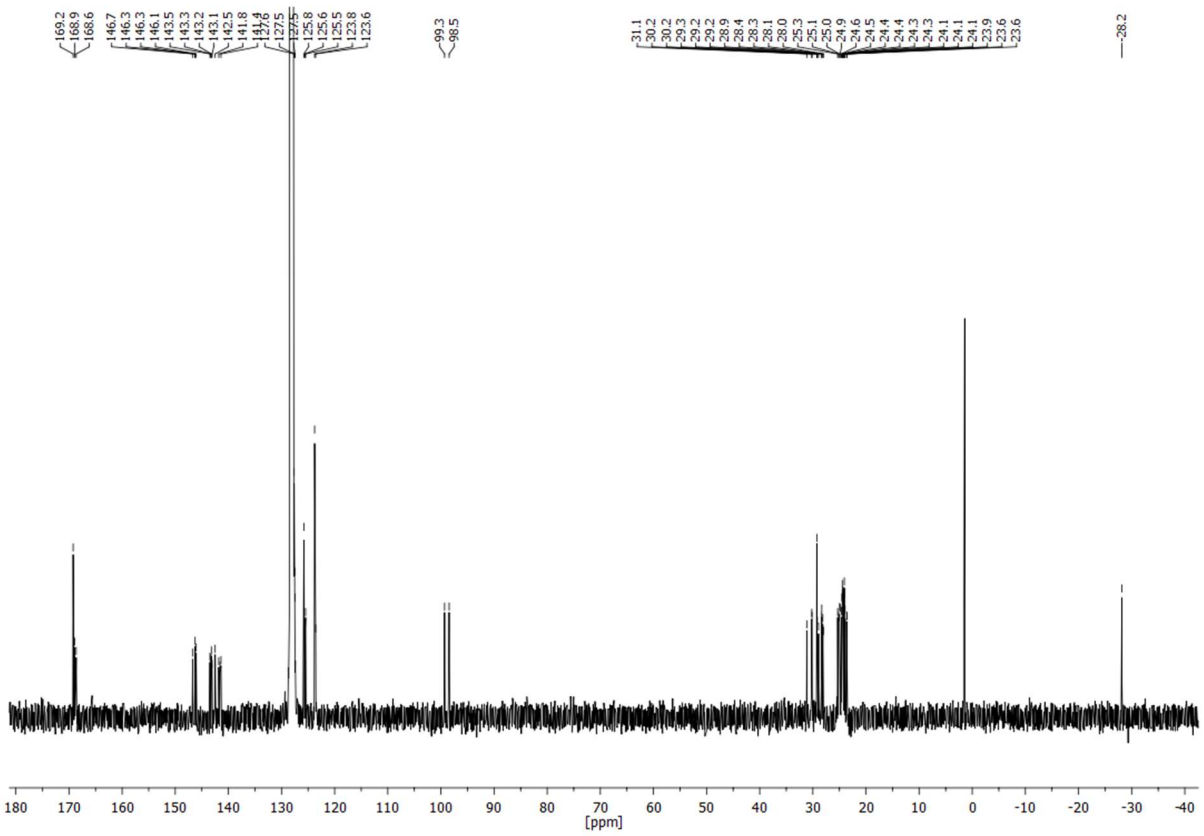

Fig. S19. ^{13}C NMR spectrum of LGa(Cl)Sb(Me)Ga(I)L (**8**) in C_6D_6.

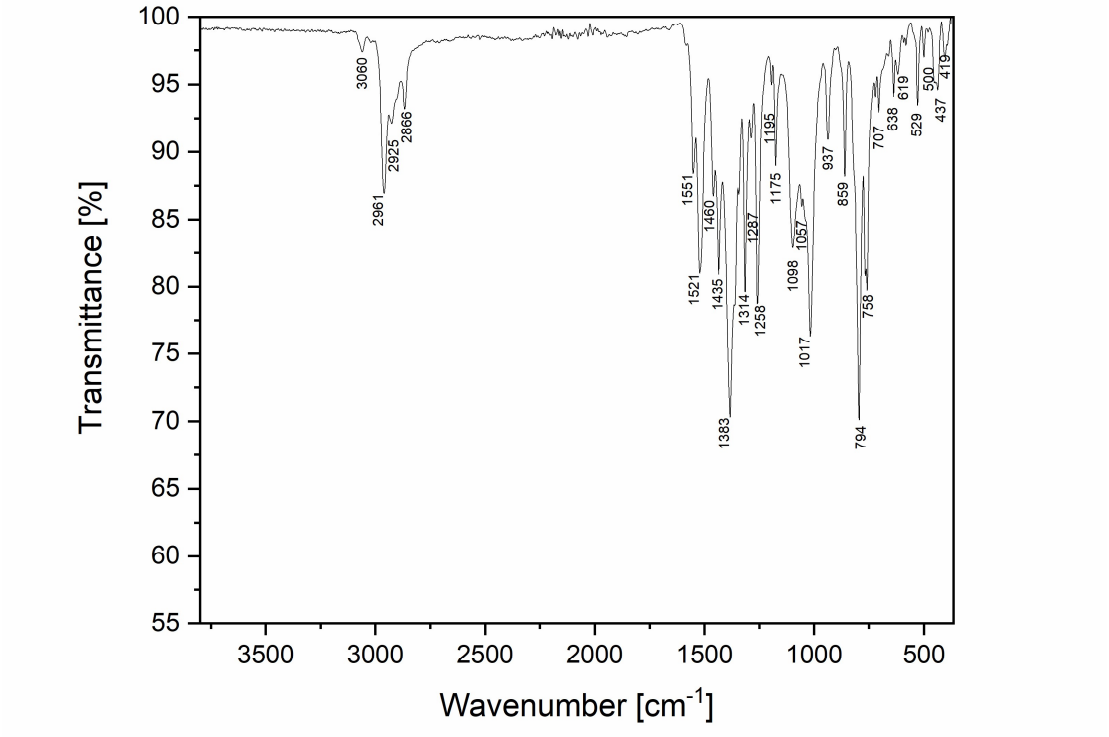

Fig. S20. ATR-IR spectrum of LGa(Cl)Sb(Me)Ga(I)L (**8**).

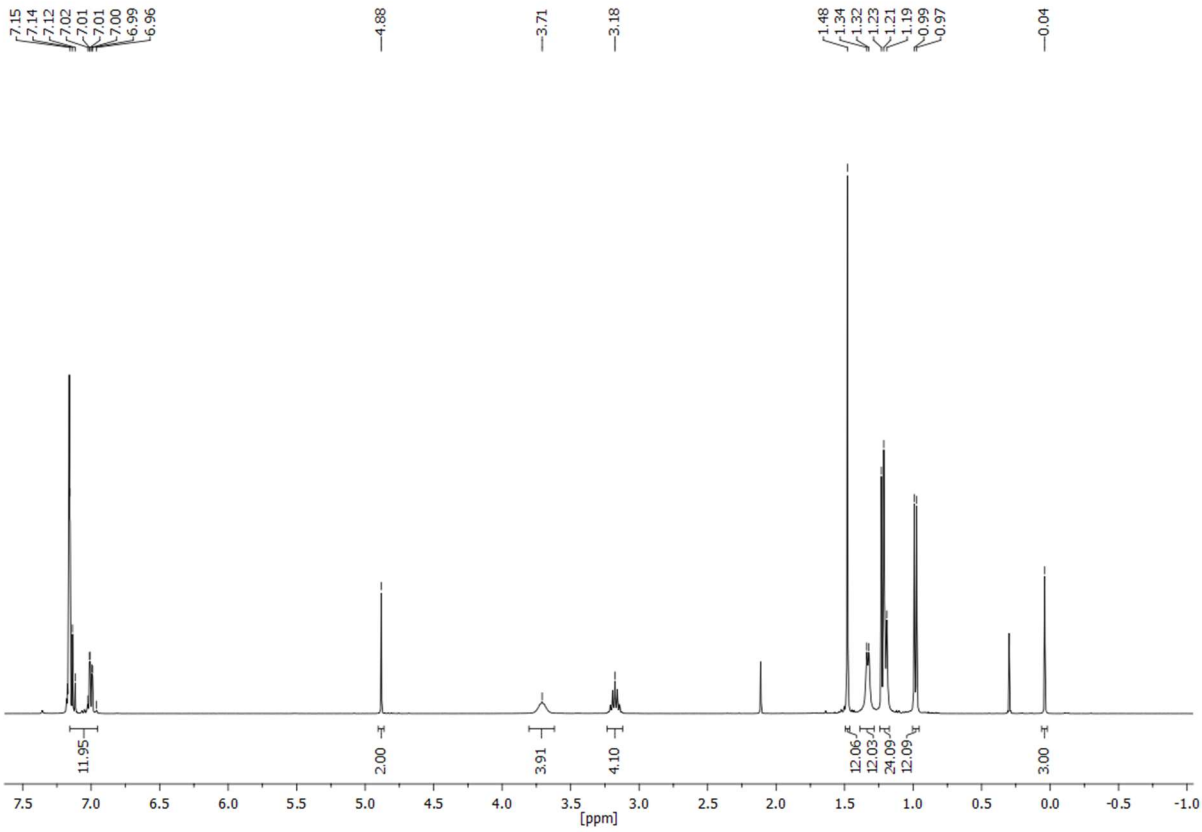

Fig. S21. ^{1}H NMR spectrum of [LGa(Cl)]$_2$AsMe (**9**) in C_6D_6.

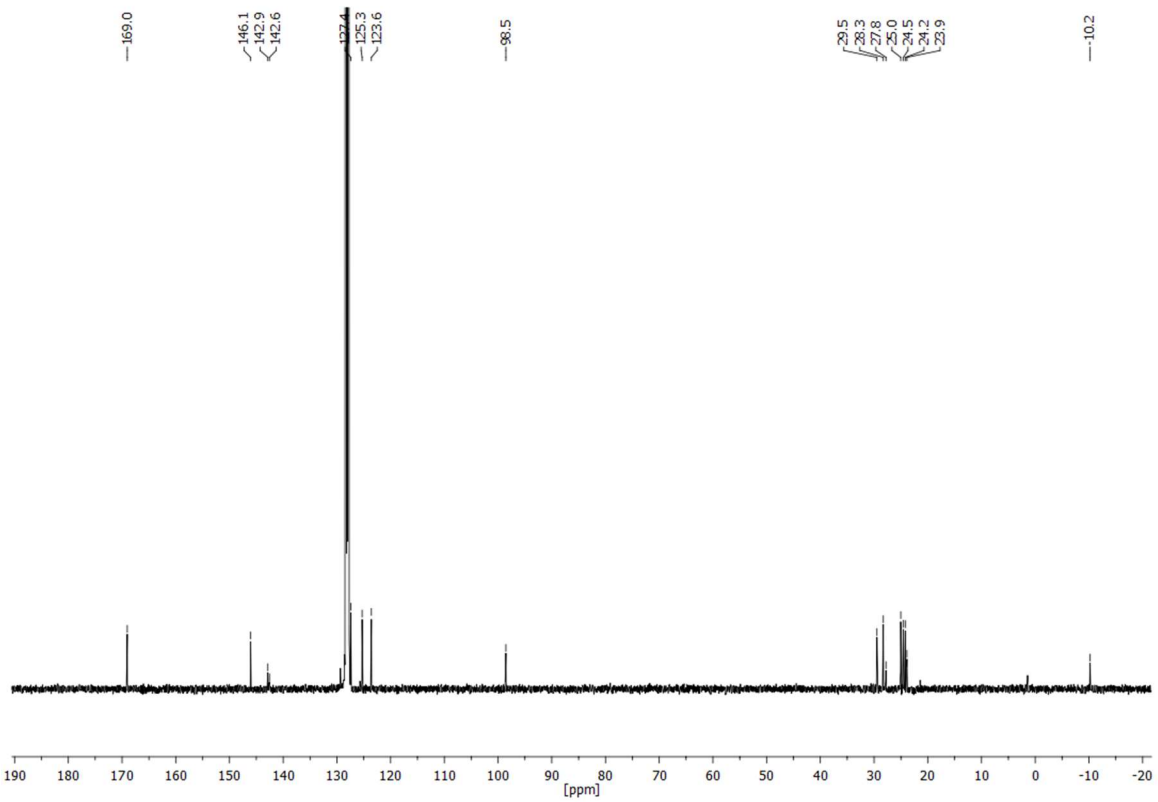

Fig. S22. ^{13}C NMR spectrum of [LGa(Cl)]$_2$AsMe (**9**) in C_6D_6.

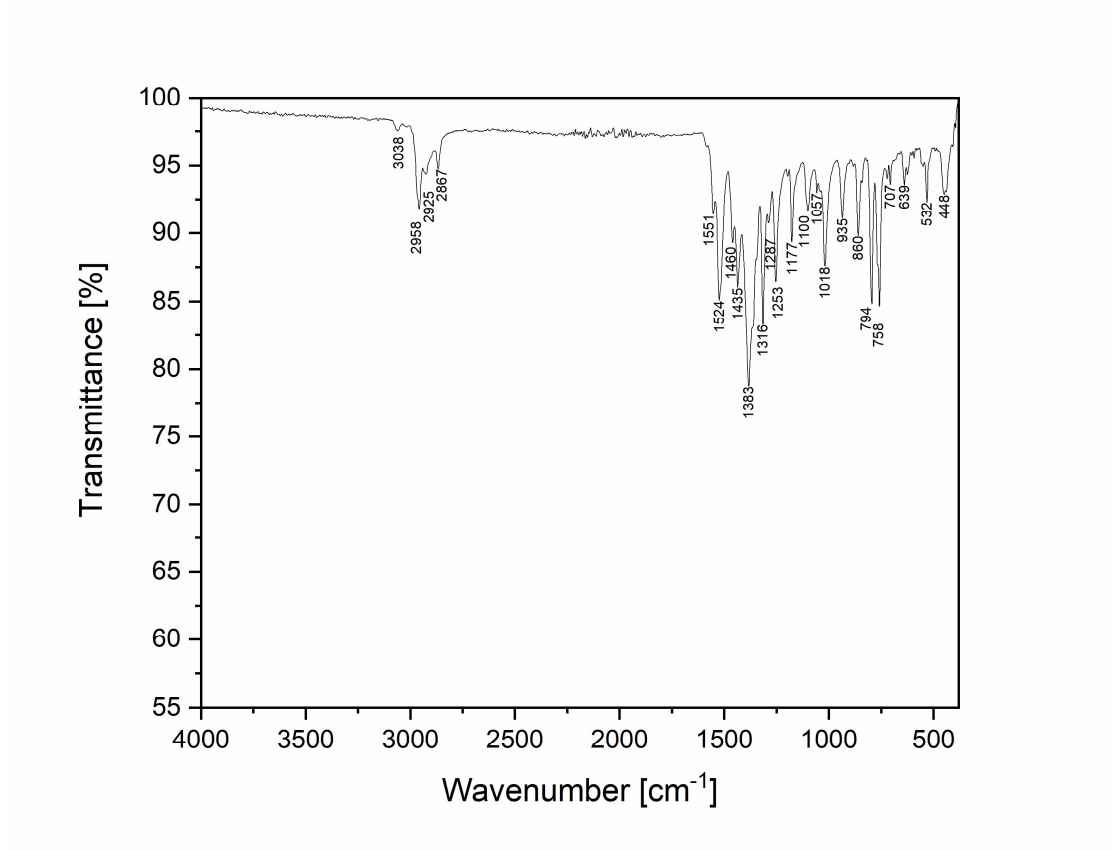

Fig. S23. ATR-IR spectrum of $[LGa(Cl)]_2AsMe$ (**9**).

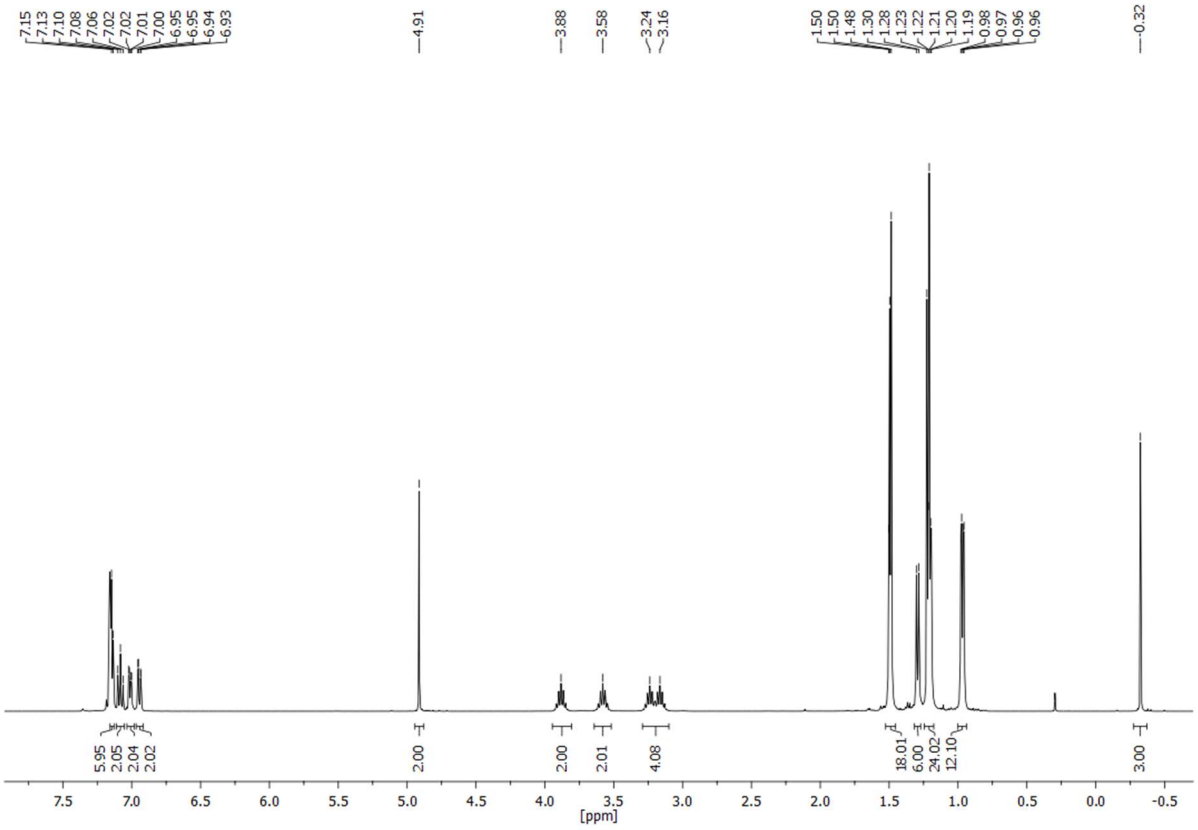

Fig. S24. ^{1}H NMR spectrum of $[LGa(Cl)]_2SbMe$ (**10**) in C_6D_6.

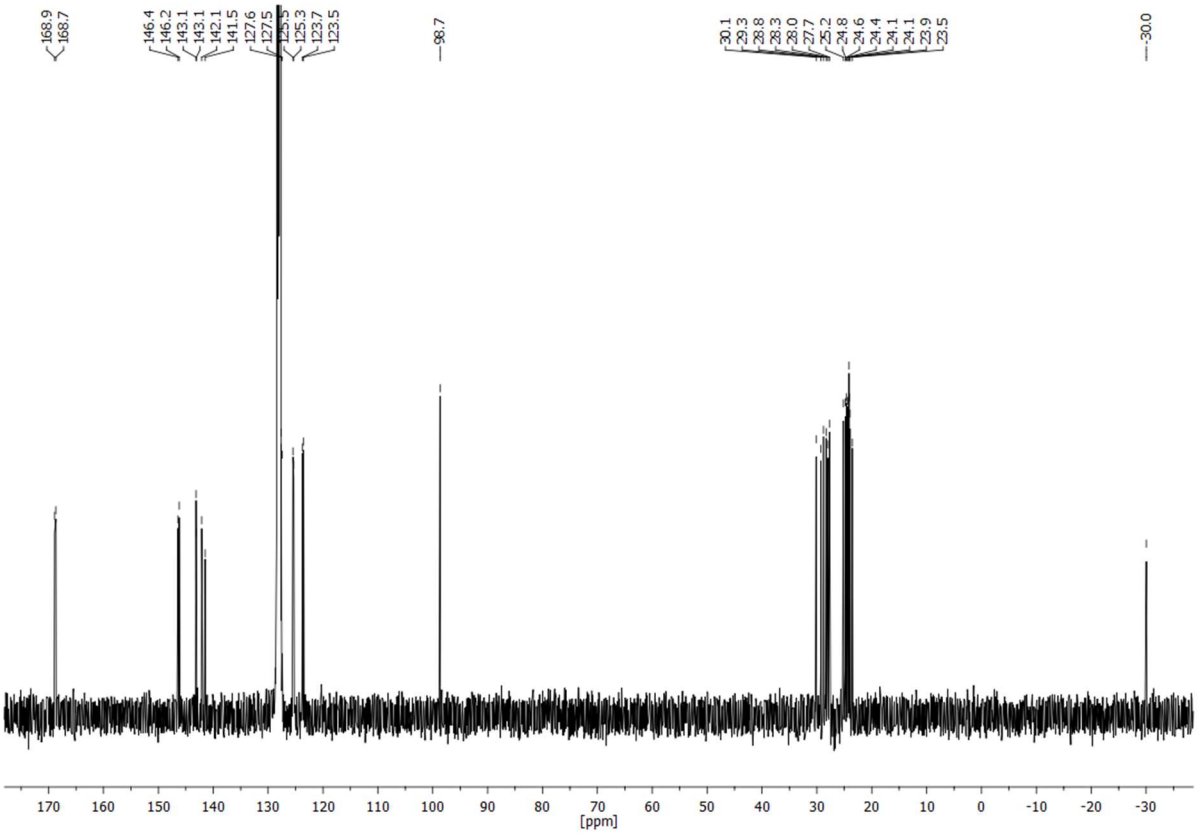

Fig. S25. ^{13}C NMR spectrum of $[LGa(Cl)]_2SbMe$ (**10**) in C_6D_6.

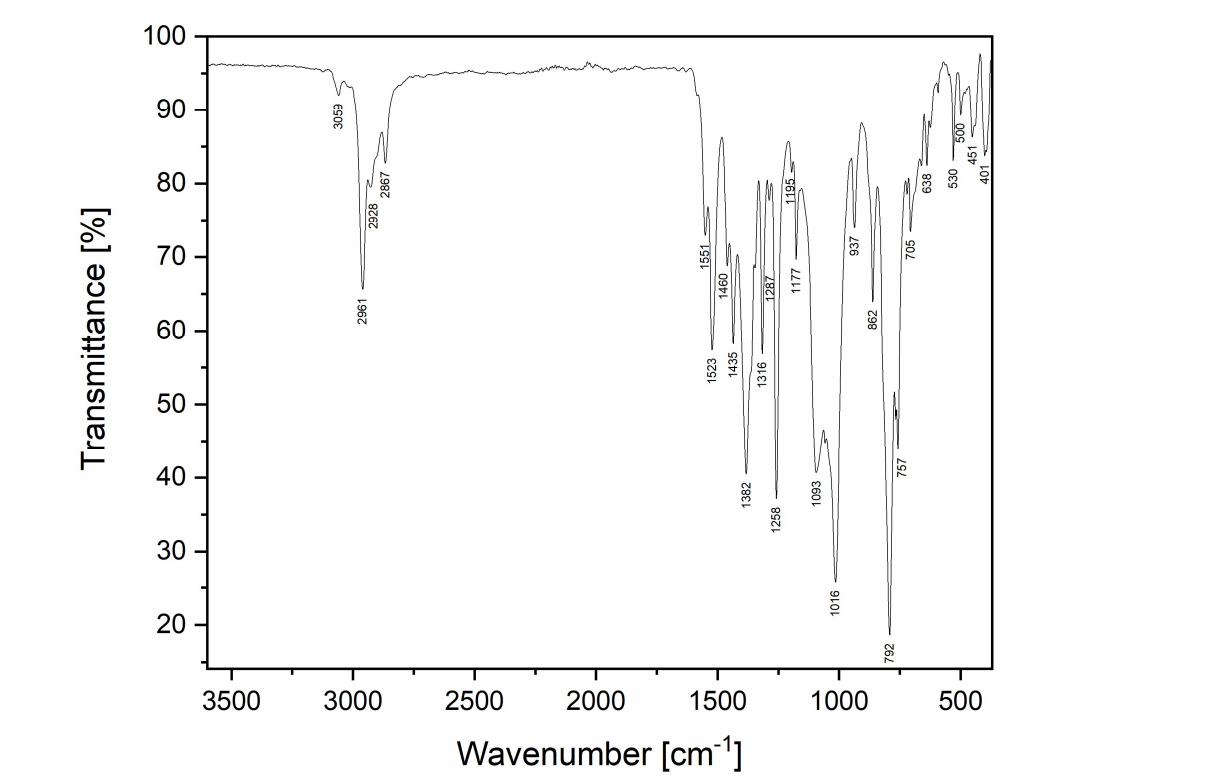

Fig. S26. ATR-IR spectrum of $[LGa(Cl)]_2SbMe$ (**10**).

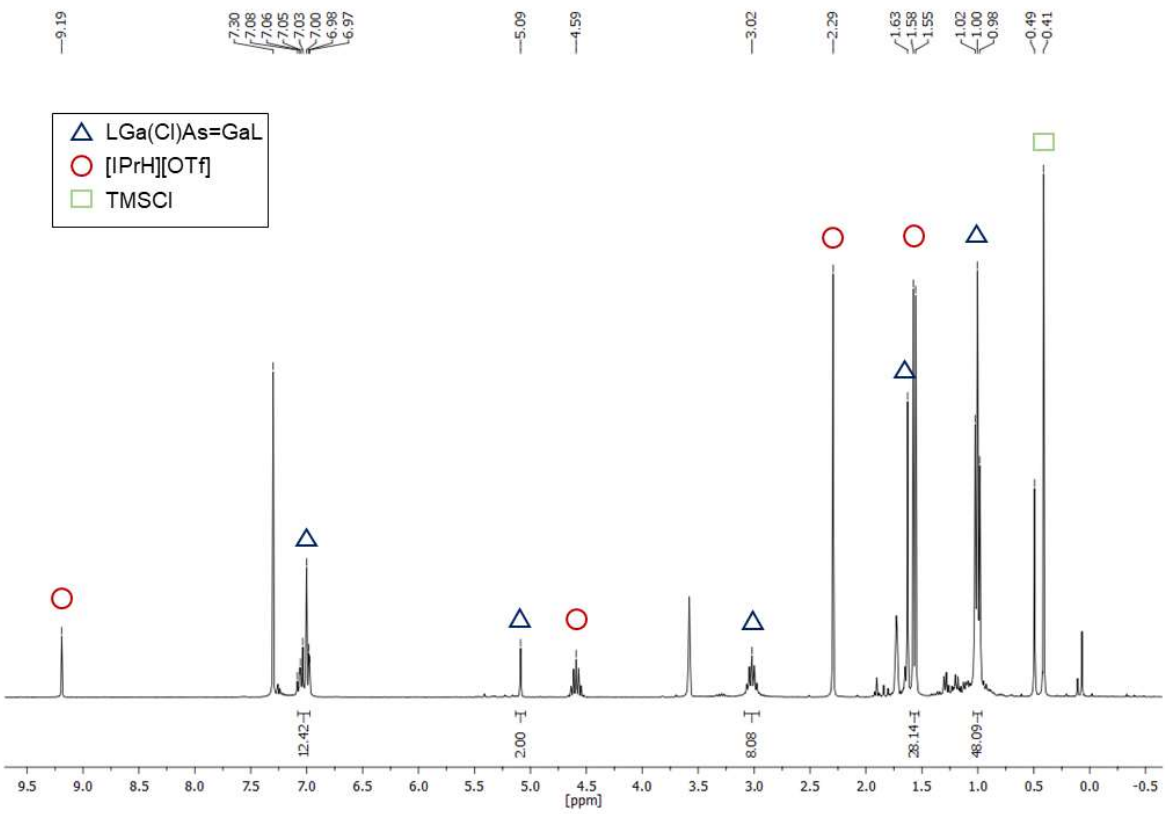

Fig. S27. ^{1}H NMR spectrum of the reaction of [[LGa(Cl)]$_2$As][IPrH] with TMSOTf in THF-d_8.

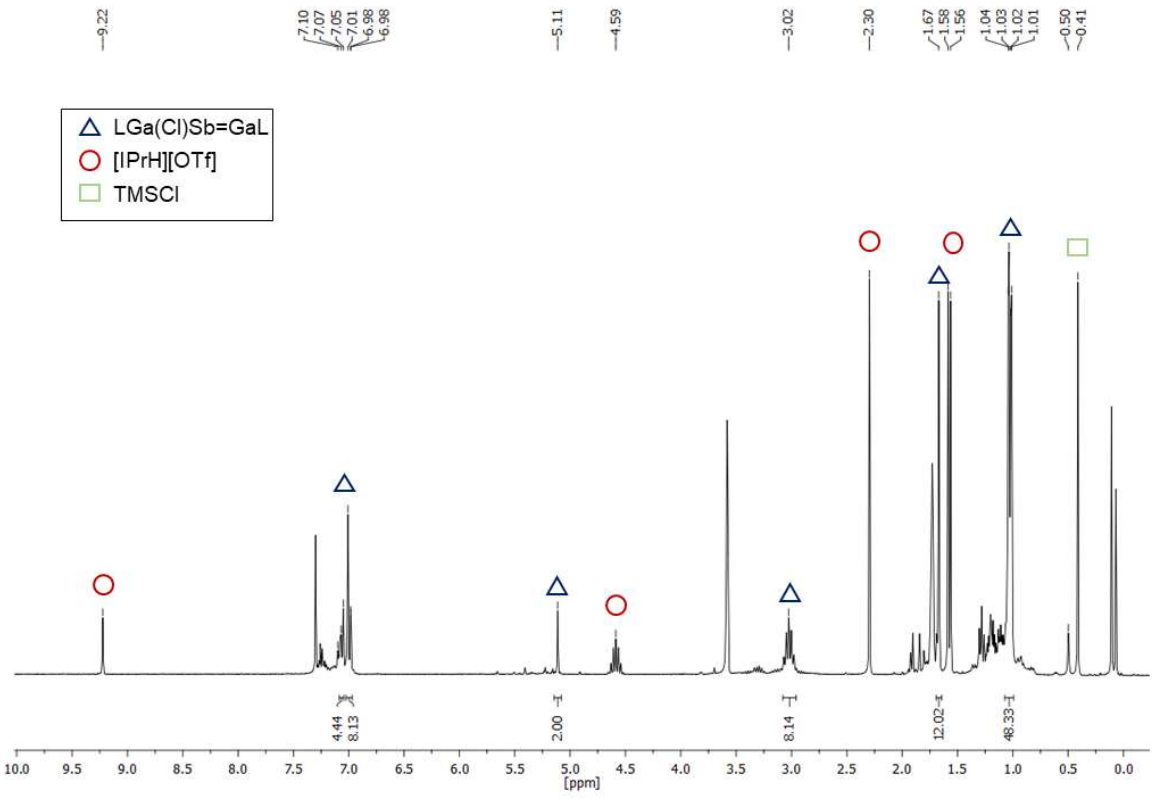

Fig. S28. ^{1}H NMR spectrum of the reaction of [[LGa(Cl)]$_2$Sb][IPrH] with TMSOTf in THF-d_8.

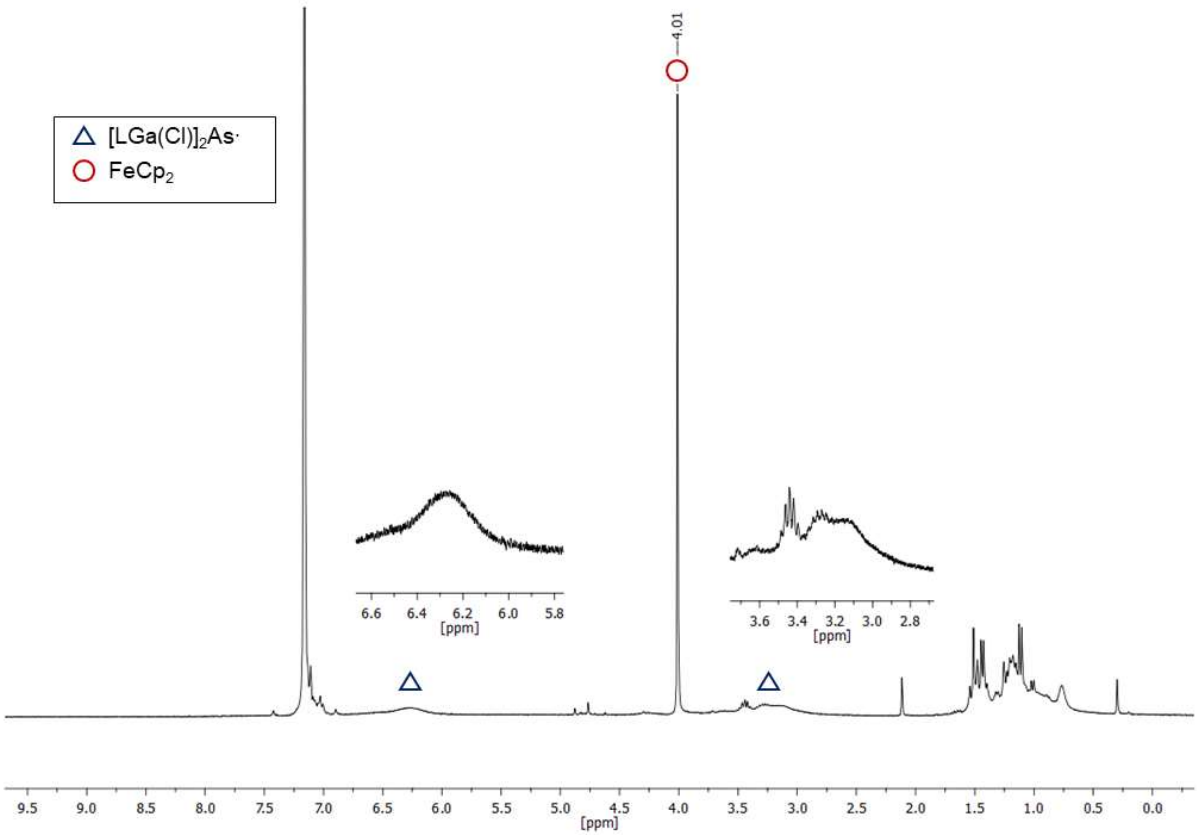

Fig. S29. ^{1}H NMR spectrum of the reaction of [[LGa(Cl)]$_2$As][IPrH] with [FeCp$_2$][BAr$^F{}_4$] in C$_6$*D*$_6$.

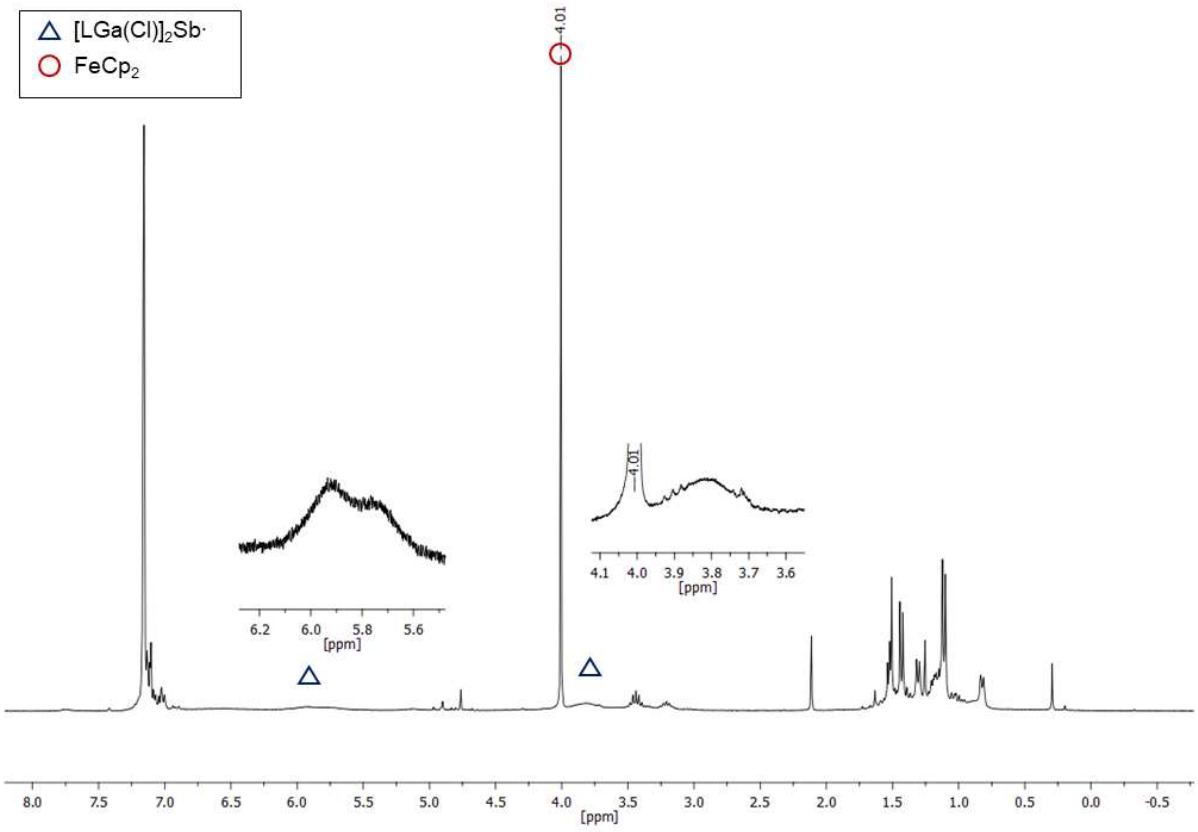

Fig. S30. ^{1}H NMR spectrum of the reaction of [[LGa(Cl)]$_2$Sb][IPrH] with [FeCp$_2$][BAr$^F{}_4$] in C$_6$*D*$_6$.

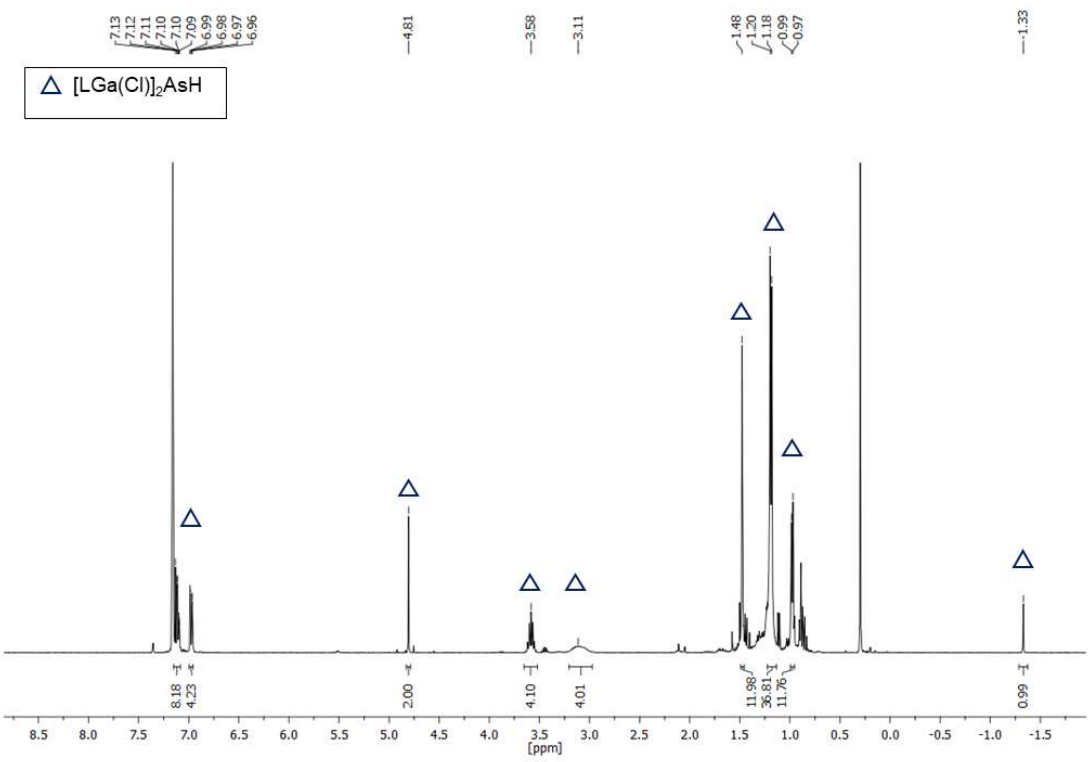

Fig. S31. ^{1}H NMR spectrum of the reaction of LGa(Cl)AsGaL with HCl in C_6D_6.

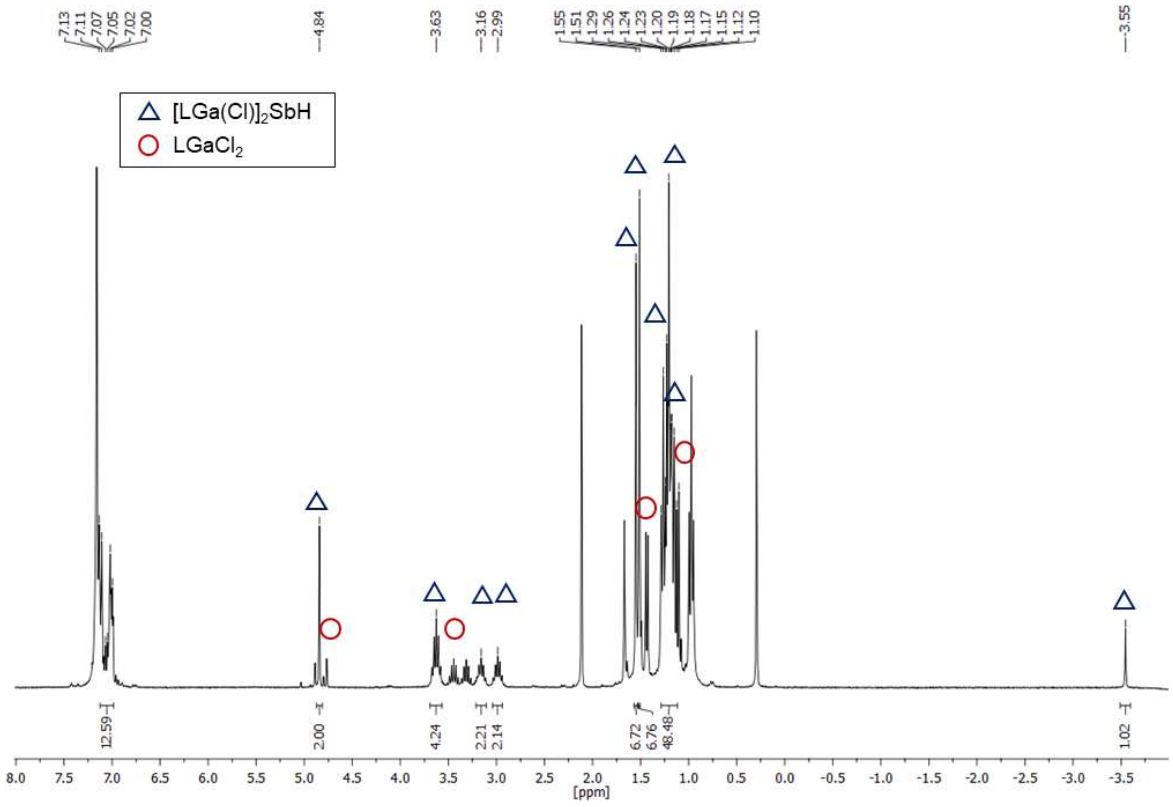

Fig. S32. In situ ^{1}H NMR spectrum of the reaction of LGa(Cl)SbGaL with HCl in C_6D_6.

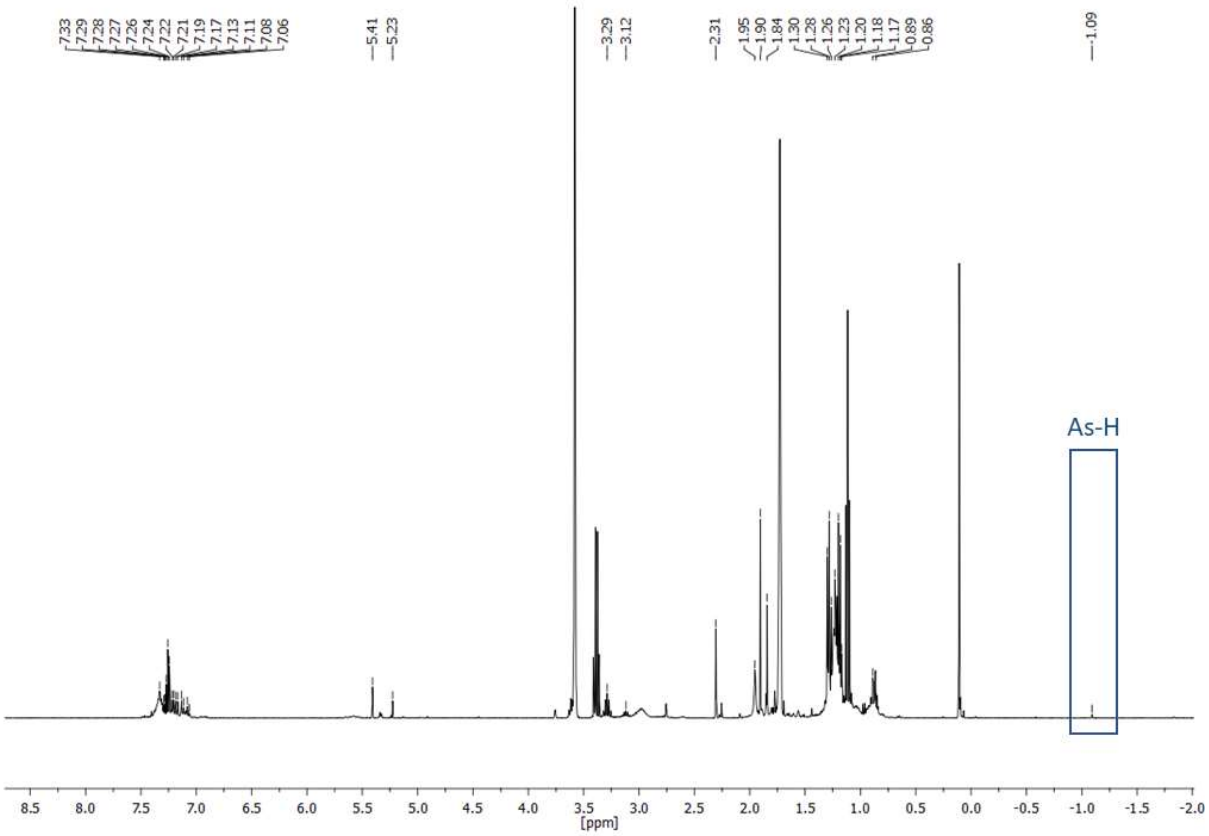

Fig. S33. *In-situ* ^{1}H NMR spectrum of the reaction of LGa(Cl)AsGaL with $[H(OEt_2)_2][BAr^F{}_4]$ in THF-d_8.

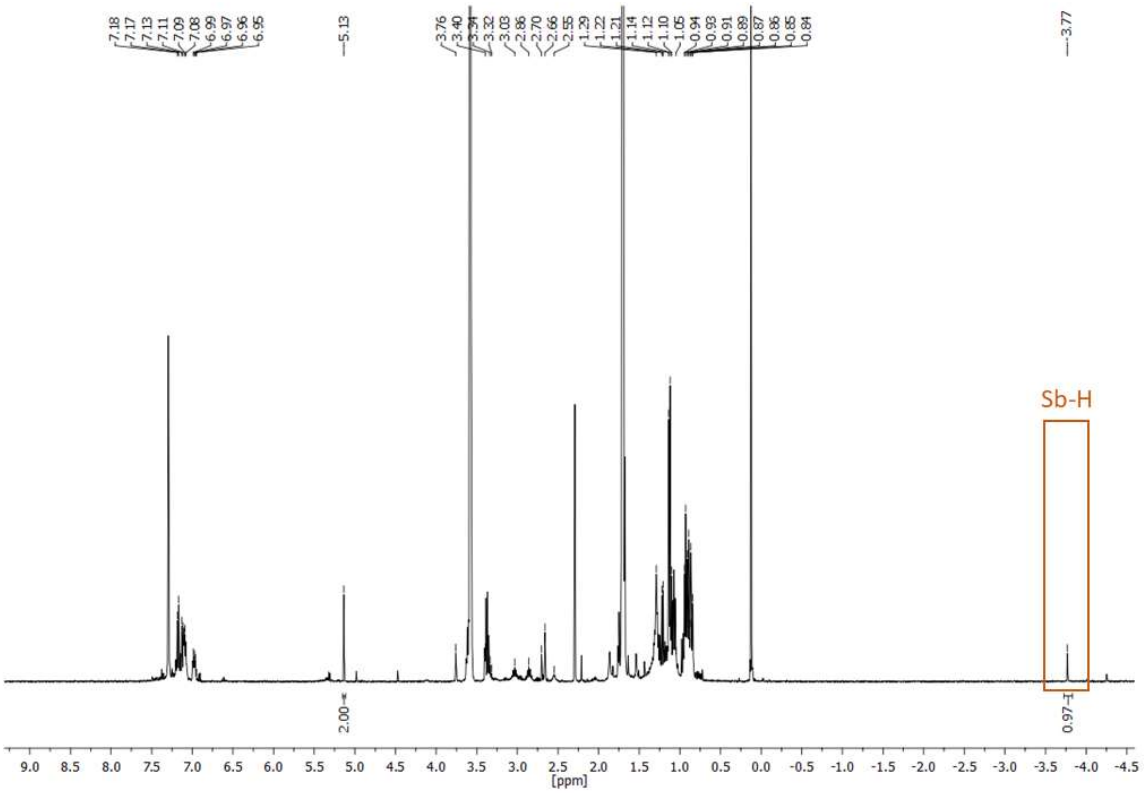

Fig. S34. *In-situ* ^{1}H NMR spectrum of the reaction of LGa(Cl)SbGaL with $[H(OEt_2)_2][Al(OC(CF_3)_3)_4]$ in THF-d_8.

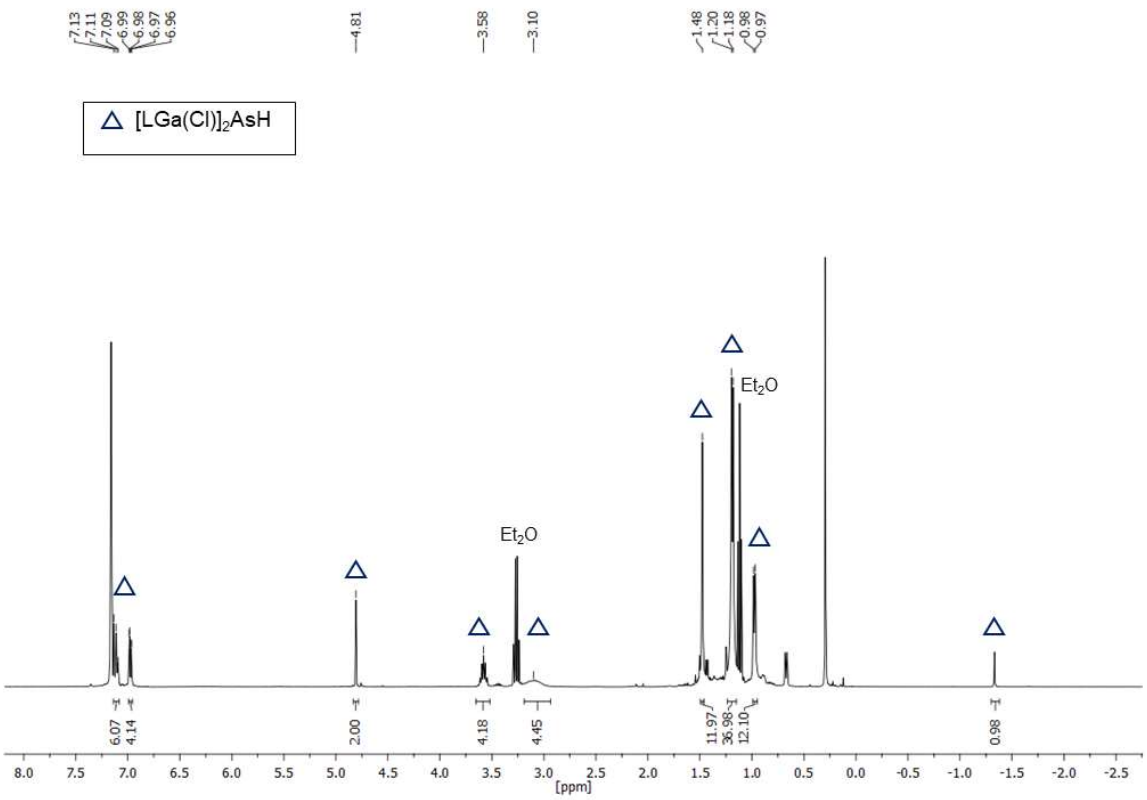

Fig. S35. ^{1}H NMR spectrum of the product from the stepwise reactions of LGa(Cl)AsGaL with $[H(OEt_2)_2][BArF_4]$ and IPrHCl in C_6D_6.

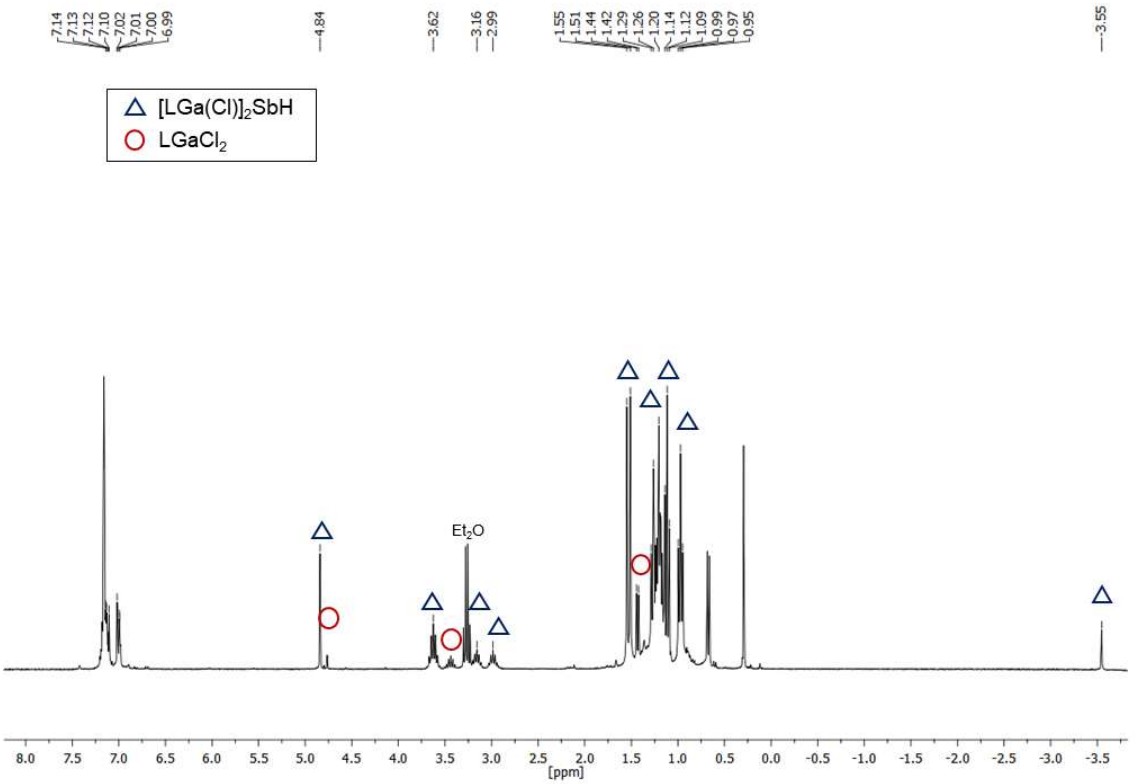

Fig. S36. ^{1}H NMR spectrum of the product from the stepwise reactions of LGa(Cl)SbGaL with $[H(OEt_2)_2][BArF_4]$ and IPrHCl in C_6D_6.

C) Cyclic voltammetry

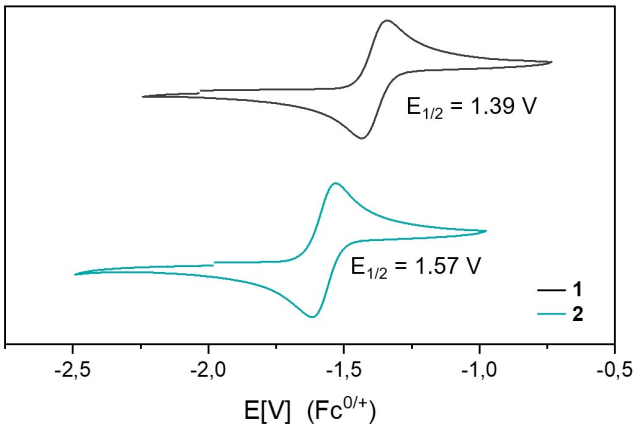

Fig. S37. Cyclic voltammograms of **1** and **2** in THF solution (1 mM) containing [n-Bu_4N][B(3,5-$(CF_3)_2$-$C_6H_3)_4$] (50 mM) as electrolyte at 100 mV s−1 scan rate.

D) Crystallographic Part

The crystals were mounted on nylon loops in inert oil. Data of **1** (jk_332_sq), **2** (jk_186), **5** (jk_460) and **9** (jk_347) were collected on a Bruker AXS D8 Kappa diffractometer with APEX2 detector (mono-chromated $Mo_{K\alpha}$ radiation, λ = 0.71073 Å) and data of **6** (jk_489), **7** (jk_577), **8** (jk_573) and **10** (jk_312) were collected on a Bruker AXS D8 Venture diffractometer with Photon II detector (mono-chromated $Cu_{K\alpha}$ radiation, λ = 1.54178 Å, micro-focus source) at 100(2) K and 120 K (**7**). The structures were solved by Direct Methods (SHELXS-97)[6] and refined anisotropically by full-matrix least-squares on F^2 (SHELXL-2014).[7,8] Absorption corrections were performed semi-empirically from equivalent reflections on basis of multi-scans (Bruker AXS APEX2/3). Hydrogen atoms were refined using a riding model or rigid methyl groups. In **1** (jk_332_sq) the i-Pr groups of the cation are disordered over two positions. The corresponding bond lengths were restrained to be equal (SADI). RIGU restraints were applied to the anisotropic displacement parameters of the disordered atoms. For the central C atoms additional SIMU restraints were used. The structure contains highly disordered molecules of benzene and THF. The final refinement was done with a solvent free dataset from a PLATON/SQUEEZE run.[9] Missing atoms were included in the sum formula for completeness. In **2** (jk_186) an i-Pr group and a benzene molecule are disordered. The corresponding bond lengths and angles of the i-Pr groups were restrained to be equal (SADI) and its atoms' anisotropic displacement parameters were restrained with RIGU. The bond lengths of all benzene molecules were restrained to be equal to 1.39 Å (DFIX). The As-H atom of **5** (jk_460) was identified in a difference Fourier map calculated only from the low angle data. The orientation found was realistic but the distance of 1.27 Å was rather short thus the bond length restrained to be equal to 1.52 Å (DFIX). All other parameters were refined freely. To exclude a misinterpretation of Fourier truncation effects the existence of this H atom was confirmed by ^{1}H-NMR spectroscopy. Despite large detector distance and small scan width per frame the integration was hampered by overlapping reflections. The worst runs were discarded leading to a reduced redundancy and a completeness of only 94% at high angles. The Sb-H atom of **6** (jk_498) was refined freely with its bond length restrained to be equal to 1.7 Å (DFIX) and its displacement parameter constrained to 1.2 times the equivalent U_{ij} of the Sb atom. Since the original residual density peak was found (at realistic orientation) in the range of the fourier truncation peaks the existence of the H was additionally confirmed by H-NMR spectroscopic studies. I and Cl atoms in **7** (jk_577) are disordered. The Ga–Cl and Ga–I bond length of both components were restrained to be equal (SADI). Due to the proximity of the alternate positions the displacement parameters were constrained to be equal (EADP). A di-isopropyl phenyl ligand is disordered over two positions. All its corresponding bond length and angle were restrained to be equal (SADI). RIGU and SIMU restraints were applied to the anisotropic displacement parameters of these atoms. Attempts to refine the approx 4e- peak near As1 as alternate orientation of the AsMe unit failed. A suitable peak for the methyl group could be found but refining it did not yield reasonable results. Cl and I atoms in **8** (jk_573) are disordered. The bond lengths of both orientations were restrained to be equal (SADI) and the neighbouring atoms were refined with common anisotropic displacement parameters (EADP). The highest residual density peak approx. 0.8 Å near Sb1 is likely a result of Fourier truncation effects. Refining it as second orientation of Sb1 does reduce the R-values, but no suitable electron density peak for the methyl group can be found, thus this model was discarded.

CCDC-2034837 (**1**), -2034838 (**2**), -2034839 (**5**), -2034840 (**6**), -2043843 (**7**), -2042636 (**8**), -2034841 (**9**) and -2034842 (**10**) contain the supplementary crystallographic data for this paper. These data can be obtained free of charge from The Cambridge Crystallographic Data Centre via www.ccdc.cam.ac.uk/data_request/cif

Table S1. Crystallographic details of **1**, **2**, **5** and **6**

	1	**2**	**5**	**6**
Empirical formula	$C_{89}H_{131}AsCl_2Ga_2N_6O_2$	$C_{96}H_{130}Cl_2Ga_2N_6Sb$	$C_{61}H_{90}AsCl_2Ga_2N_4$	$C_{61}H_{90}Cl_2Ga_2N_4Sb$
M [g mol^{-1}]	1602.25	1700.14	1164.62	1211.45
Crystal size [mm]	0.395 × 0.251 × 0.115	0.371 × 0.137 × 0.130	0.310 × 0.282 × 0.205	0.147 × 0.139 × 0.068
T [K]	100(2)	100(2)	100(2)	100(2)
Crystal system	triclinic	triclinic	monoclinic	monoclinic
Space group	$P\bar{1}$	$P\bar{1}$	$P2_1/n$	$P2_1/n$
a [Å]	13.1432(14)	12.9336(10)	12.040(3)	12.2314(5)
b [Å]	18.927(2)	18.4527(16)	41.955(9)	41.5482(15)
c [Å]	19.015(2)	19.8000(16)	13.217(3)	13.1137(5)
α [°]	100.016(6)	93.287(5)	90	90
β [°]	101.582(6)	91.716(4)	112.218(11)	111.6273(17)
γ [°]	104.695(6)	102.306(4)	90	90
V [Å^3]	4354.5(8)	4605.0(7)	6181(2)	6195.1(4)
Z	2	2	4	4
D_{calcd} [g cm^{-3}]	1.222	1.226	1.252	1.299
μ(K_α [mm^{-1}])	1.105 (Mo)	0.976 (Mo)	1.528 (Mo)	5.527 (Cu)
Transmissions	0.75/0.66	0.75/0.59	0.75/0.63	0.75/0.61
F(000)	1704	1790	2452	2524
Index ranges	-18 ≤ h ≤ 16	-20 ≤ h ≤ 13	-15 ≤ h ≤ 18	-15 ≤ h ≤ 15
	-27 ≤ k ≤ 26	-26 ≤ k ≤ 28	-64 ≤ k ≤ 64	-53 ≤ k ≤ 52
	-27 ≤ l ≤ 27	-30 ≤ l ≤ 25	-20 ≤ l ≤ 16	-16 ≤ l ≤ 16
θ_{max} [°]	30.751	33.383	33.628	80.448
Reflections collected	150267	101351	84728	273138
Independent reflections	26307	32463	23017	13549
R_{int}	0.0350	0.0420	0.0265	0.0595
Refined parameters	861	1066	656	655
R_1 [$I > 2\sigma(I)$]	0.0432	0.0375	0.0423	0.0339
wR_2 [all data]	0.1278	0.0929	0.1052	0.0887
GooF	1.037	1.009	1.088	1.031
$\Delta\rho_{final}$ (max/min) [e·Å^{-3}]	1.201/-0.520	1.661/-1.080	1.288/-0.992	0.970/-1.386

Table S2. Crystallographic details of **7**, **8**, **9** and **10**.

	7	**8**	**9**	**10**
Empirical formula	$C_{59}H_{85}AsClGa_2IN_4$	$C_{59}H_{85}ClGa_2IN_4Sb$	$C_{59}H_{85}AsCl_2Ga_2N_4$	$C_{59}H_{85}Cl_2Ga_2N_4Sb$
M [g mol^{-1}]	1227.02	1273.84	1135.56	1182.40
Crystal size [mm]	0.222 × 0.205 × 0.081	0.450 × 0.203 × 0.064	0.120 × 0.090 × 0.050	0.281 × 0.157 × 0.133
T [K]	100(2)	120(2)	100(2)	100(2)
Crystal system	triclinic	monoclinic	triclinic	triclinic
Space group	$P\bar{1}$	$P2_1/n$	$P\bar{1}$	$P\bar{1}$
a [Å]	12.0283(4)	13.143(3)	11.8191(11)	12.0390(17)
b [Å]	13.4279(4)	20.082(5)	13.5581(12)	13.6260(19)
c [Å]	20.1073(6)	22.477(5)	19.9868(18)	19.833(3)
α [°]	80.1899(17)	90	79.651(4)	79.981(4)
β [°]	85.0967(18)	101.298(7)	84.731(5)	84.097(4)
γ [°]	65.8065(17)	90	66.276(4)	66.850(4)
V [Å^3]	2918.62(16)	5818(2)	2883.7(5)	2943.8(7)
Z	2	4	2	2
D_{calcd} [g cm^{-3}]	1.396	1.454	1.308	1.334
μ(K_α [mm^{-1}])	6.624	1.997	1.636 (Mo)	5.803 (Cu)
Transmissions	0.75/0.38	0.75/0.50	0.75/0.68	0.75/0.62
F(000)	1264	2600	1192	1228
Index ranges	-15 ≤ h ≤ 15	-18 ≤ h ≤ 18	-16 ≤ h ≤ 16	-15 ≤ h ≤ 15
	-17 ≤ k ≤ 17	-28 ≤ k ≤ 28	-19 ≤ k ≤ 19	-17 ≤ k ≤ 17
	-23 ≤ l ≤ 25	-32 ≤ l ≤ 32	-28 ≤ l ≤ 28	-25 ≤ l ≤ 25
θ_{max} [°]	81.960	30.531	30.781	81.146
Reflections collected	143658	253879	146102	236084
Independent reflections	12743	17756	17914	12822
R_{int}	0.0717	0.0556	0.0887	0.0619
Refined parameters	755	641	634	634
R_1 [$I > 2\sigma(I)$]	0.0550	0.0329	0.0383	0.0599
wR_2 [all data]	0.1596	0.0771	0.0804	0.1392
GooF	1.079	1.123	1.015	1.038
$\Delta\rho_{final}$ (max/min) [e·Å^{-3}]	3.299/-2.042	4.605/-1.911	1.541/-1.002	6.251/-4.221

Table S3. Selected bond lengths [Å] and angles [°] of pnictanides $[LGa(Cl)]_2E[IPrH]$ (E = As **1**, Sb **2**), pnictogen-centered radicals $[LGa(Cl)]_2E^{\bullet}$ (E = As **I**, Sb **II**) and gallapnictenes LGaEGa(Cl)L (E = As **III**, Sb **IV**).[5]

	1	**2**	**I**	**II**	**III**	**IV**
Ga1-E	2.3171(4)	2.5169(3)	2.3983(11)	2.5899(4)	2.2628(5);	2.4629(2)
Ga2-E	2.3197(4)	2.5186(3)	2.4085(14)	2.5909(3)	2.3503(4)	2.5528(2)
Ga1-Cl1	2.2943(6)	2.2611(5)	2.1967(10)	2.1623(9)	-	-
Ga2-Cl2	2.2548(7)	2.3012(5)	2.2069(10)	2.2028(7)	2.2783(9)	2.2409(5)
Ga1-E-Ga2	107.377(15)	104.534(9)	109.43(6)	104.89(1)	111.419(19	113.184(7)

Table S4. Central structural bond lengths [Å] and angles [°] of **1**, **2**, **5** and **6**.

	1 (E = As)	**2** (E = Sb)	**5**(E = As)	**6** (E = Sb)
Ga1–E	2.3171(4)	2.5169(3)	2.4156(5)	2.5669(3)
Ga2–E	2.3197(4)	2.5186(3)	2.4000(6)	2.5803(3)
Ga1–Cl1	2.2943(6)	2.2611(5)	2.2320(6)	2.2161(6)
Ga2–Cl2	2.2548(7)	2.3012(5)	2.2104(6)	2.2012(6)
Ga1–E–Ga2	107.377(15)	104.534(9)	110.566(13)	107.412(10)

Table S5. Central structural bond lengths [Å] and angles [°] of **7**–**10**.

	7 (E = As, X = I)	**8** (E = Sb X = I,)	**9** (E = As, X = Cl)	**10** (E = Sb, X = Cl)
E–C	1.939(6)	2.164(3)	1.990(2)	2.129(7)
Ga1–E	2.4232(6)	2.6118(6)	2.4044(4)	2.5837(7)
Ga2–E	2.3946(6)	2.6132(5)	2.4134(4)	2.6045(6)
Ga1–Cl1	2.193(5), 2.166(6)	2.228(8), 2.2300(14)	2.2045(6)	2.2084(12)
Ga2–X2	2.5169(7), 2.5197(19)	2.5973(6), 2.495(5)	2.2003(6)	2.2103(12)
Ga1–E–Ga2	110.14(2)	111.076(12)	108.431(12)	106.652(19)

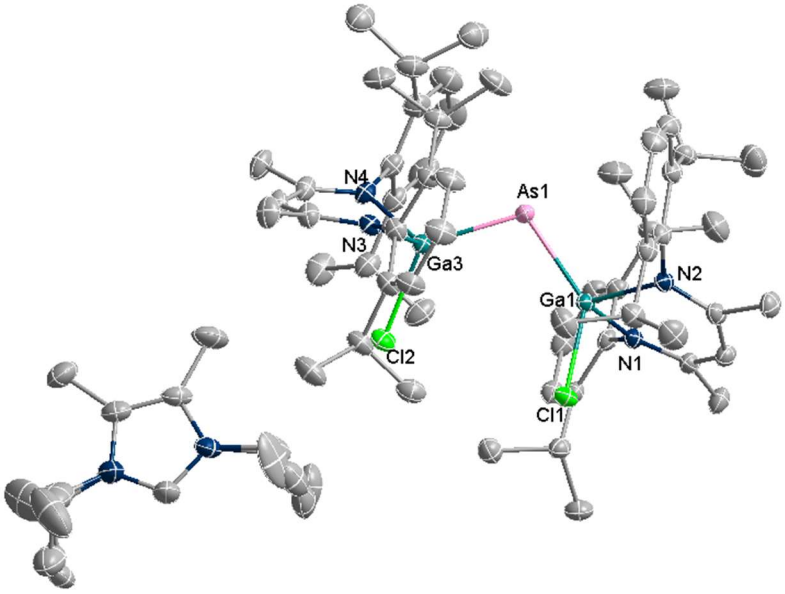

Fig. S38. Solid state structure of **1**. Hydrogen atoms and minor component of the disorder are omitted for clarity. Displacement ellipsoids drawn at 50% probability levels.

Table S6: Bond lengths [Å] for **1** (jk_332m).

As(1)-Ga(3)	2.3171(4)	C(9)-C(10)	1.378(4)	C(41)-C(42)	1.533(4)
As(1)-Ga(1)	2.3197(4)	C(10)-C(11)	1.397(3)	C(44)-C(45)	1.529(4)
Ga(1)-N(2)	2.0139(18)	C(11)-C(15)	1.521(3)	C(44)-C(46)	1.532(4)
Ga(1)-N(1)	2.0166(18)	C(12)-C(14)	1.532(3)	C(47)-C(52)	1.403(4)
Ga(1)-Cl(1)	2.2943(6)	C(12)-C(13)	1.538(3)	C(47)-C(48)	1.405(3)
Ga(3)-N(4)	2.0063(18)	C(15)-C(17)	1.521(4)	C(48)-C(49)	1.390(4)
Ga(3)-N(3)	2.0093(19)	C(15)-C(16)	1.552(4)	C(48)-C(53)	1.519(4)
Ga(3)-Cl(2)	2.2548(7)	C(18)-C(19)	1.402(3)	C(49)-C(50)	1.387(5)
N(1)-C(1)	1.336(3)	C(18)-C(23)	1.410(3)	C(50)-C(51)	1.384(5)
N(1)-C(6)	1.445(3)	C(19)-C(20)	1.403(3)	C(51)-C(52)	1.388(4)
N(2)-C(3)	1.328(3)	C(19)-C(24)	1.510(4)	C(52)-C(56)	1.520(4)
N(2)-C(18)	1.445(3)	C(20)-C(21)	1.376(4)	C(53)-C(54)	1.531(3)
N(3)-C(30)	1.336(3)	C(21)-C(22)	1.378(4)	C(53)-C(55)	1.535(4)
N(3)-C(35)	1.439(3)	C(22)-C(23)	1.393(3)	C(56)-C(58)	1.523(4)
N(4)-C(32)	1.326(3)	C(23)-C(27)	1.520(4)	C(56)-C(57)	1.525(4)
N(4)-C(47)	1.442(3)	C(24)-C(26)	1.525(4)	C(60)-C(61)	1.344(4)
N(5)-C(59)	1.328(3)	C(24)-C(25)	1.536(4)	C(60)-C(68)	1.488(4)
N(5)-C(60)	1.389(3)	C(27)-C(29)	1.521(4)	C(61)-C(69)	1.490(4)
N(5)-C(62')	1.476(13)	C(27)-C(28)	1.529(4)	C(62)-C(64)	1.509(8)
N(5)-C(62)	1.481(8)	C(30)-C(31)	1.404(3)	C(62)-C(63)	1.515(10)
N(6)-C(59)	1.336(4)	C(30)-C(33)	1.510(3)	C(62')-C(63')	1.513(13)
N(6)-C(61)	1.378(3)	C(31)-C(32)	1.400(3)	C(62')-C(64')	1.516(13)
N(6)-C(65)	1.488(5)	C(32)-C(34)	1.515(3)	C(65)-C(66)	1.511(6)
N(6)-C(65')	1.489(15)	C(35)-C(36)	1.400(3)	C(65)-C(67)	1.518(8)
C(1)-C(2)	1.406(3)	C(35)-C(40)	1.413(3)	C(65')-C(67')	1.511(15)

C(1)-C(4)	1.506(3)	C(36)-C(37)	1.398(3)	C(65')-C(66')	1.516(14)
C(2)-C(3)	1.402(3)	C(36)-C(41)	1.525(3)	C11-C21	1.377(4)
C(3)-C(5)	1.513(3)	C(37)-C(38)	1.384(4)	C11-C61	1.382(5)
C(6)-C(11)	1.402(3)	C(38)-C(39)	1.384(4)	C21-C31	1.382(4)
C(6)-C(7)	1.410(3)	C(39)-C(40)	1.387(3)	C31-C41	1.376(5)
C(7)-C(8)	1.398(3)	C(40)-C(44)	1.518(3)	C41-C51	1.380(4)
C(7)-C(12)	1.515(3)	C(41)-C(43)	1.521(4)	C51-C61	1.375(4)
C(8)-C(9)	1.384(4)				

Table S7: Bond angles [°] for **1** (jk_332m).

Ga(3)-As(1)-Ga(1)	107.377(15)	C(19)-C(24)-C(25)	111.6(2)
N(2)-Ga(1)-N(1)	92.78(7)	C(26)-C(24)-C(25)	109.9(2)
N(2)-Ga(1)-Cl(1)	98.11(6)	C(23)-C(27)-C(29)	112.8(2)
N(1)-Ga(1)-Cl(1)	95.58(6)	C(23)-C(27)-C(28)	112.3(2)
N(2)-Ga(1)-As(1)	108.27(5)	C(29)-C(27)-C(28)	110.1(2)
N(1)-Ga(1)-As(1)	123.38(5)	N(3)-C(30)-C(31)	123.9(2)
Cl(1)-Ga(1)-As(1)	130.34(2)	N(3)-C(30)-C(33)	120.6(2)
N(4)-Ga(3)-N(3)	91.42(8)	C(31)-C(30)-C(33)	115.5(2)
N(4)-Ga(3)-Cl(2)	99.86(6)	C(32)-C(31)-C(30)	126.9(2)
N(3)-Ga(3)-Cl(2)	97.59(6)	N(4)-C(32)-C(31)	123.9(2)
N(4)-Ga(3)-As(1)	112.19(6)	N(4)-C(32)-C(34)	120.1(2)
N(3)-Ga(3)-As(1)	122.03(5)	C(31)-C(32)-C(34)	116.0(2)
Cl(2)-Ga(3)-As(1)	126.56(2)	C(36)-C(35)-C(40)	120.9(2)
C(1)-N(1)-C(6)	117.19(18)	C(36)-C(35)-N(3)	120.7(2)
C(1)-N(1)-Ga(1)	120.73(15)	C(40)-C(35)-N(3)	118.4(2)
C(6)-N(1)-Ga(1)	122.05(13)	C(37)-C(36)-C(35)	118.5(2)
C(3)-N(2)-C(18)	119.15(18)	C(37)-C(36)-C(41)	118.6(2)
C(3)-N(2)-Ga(1)	121.57(15)	C(35)-C(36)-C(41)	122.8(2)
C(18)-N(2)-Ga(1)	119.05(14)	C(38)-C(37)-C(36)	120.9(2)
C(30)-N(3)-C(35)	117.60(19)	C(39)-C(38)-C(37)	119.8(2)
C(30)-N(3)-Ga(3)	121.19(15)	C(38)-C(39)-C(40)	121.3(2)
C(35)-N(3)-Ga(3)	120.80(15)	C(39)-C(40)-C(35)	118.3(2)
C(32)-N(4)-C(47)	120.61(19)	C(39)-C(40)-C(44)	120.7(2)
C(32)-N(4)-Ga(3)	121.26(16)	C(35)-C(40)-C(44)	120.9(2)
C(47)-N(4)-Ga(3)	117.91(14)	C(43)-C(41)-C(36)	109.8(2)
C(59)-N(5)-C(60)	108.4(2)	C(43)-C(41)-C(42)	109.5(2)
C(59)-N(5)-C(62')	126.9(10)	C(36)-C(41)-C(42)	113.1(2)
C(60)-N(5)-C(62')	124.3(10)	C(40)-C(44)-C(45)	111.0(2)
C(59)-N(5)-C(62)	124.8(6)	C(40)-C(44)-C(46)	112.8(2)
C(60)-N(5)-C(62)	126.8(6)	C(45)-C(44)-C(46)	110.5(2)
C(59)-N(6)-C(61)	108.4(2)	C(52)-C(47)-C(48)	121.0(2)
C(59)-N(6)-C(65)	125.4(3)	C(52)-C(47)-N(4)	118.8(2)
C(61)-N(6)-C(65)	126.2(3)	C(48)-C(47)-N(4)	120.1(2)

C(59)-N(6)-C(65')	119.0(14)	C(49)-C(48)-C(47)	118.3(3)
C(61)-N(6)-C(65')	124.8(11)	C(49)-C(48)-C(53)	119.3(2)
N(1)-C(1)-C(2)	124.1(2)	C(47)-C(48)-C(53)	122.4(2)
N(1)-C(1)-C(4)	120.0(2)	C(50)-C(49)-C(48)	121.1(3)
C(2)-C(1)-C(4)	115.9(2)	C(51)-C(50)-C(49)	119.9(3)
C(3)-C(2)-C(1)	128.1(2)	C(50)-C(51)-C(52)	120.8(3)
N(2)-C(3)-C(2)	123.7(2)	C(51)-C(52)-C(47)	118.8(2)
N(2)-C(3)-C(5)	119.8(2)	C(51)-C(52)-C(56)	119.5(3)
C(2)-C(3)-C(5)	116.4(2)	C(47)-C(52)-C(56)	121.6(2)
C(11)-C(6)-C(7)	120.5(2)	C(48)-C(53)-C(54)	111.7(2)
C(11)-C(6)-N(1)	118.58(19)	C(48)-C(53)-C(55)	110.1(2)
C(7)-C(6)-N(1)	120.9(2)	C(54)-C(53)-C(55)	109.7(2)
C(8)-C(7)-C(6)	118.4(2)	C(52)-C(56)-C(58)	112.5(3)
C(8)-C(7)-C(12)	118.6(2)	C(52)-C(56)-C(57)	110.6(2)
C(6)-C(7)-C(12)	123.1(2)	C(58)-C(56)-C(57)	110.7(2)
C(9)-C(8)-C(7)	121.5(2)	N(5)-C(59)-N(6)	108.7(2)
C(10)-C(9)-C(8)	119.4(2)	C(61)-C(60)-N(5)	107.0(2)
C(9)-C(10)-C(11)	121.4(2)	C(61)-C(60)-C(68)	130.8(3)
C(10)-C(11)-C(6)	118.8(2)	N(5)-C(60)-C(68)	122.2(3)
C(10)-C(11)-C(15)	119.2(2)	C(60)-C(61)-N(6)	107.5(2)
C(6)-C(11)-C(15)	122.1(2)	C(60)-C(61)-C(69)	130.4(3)
C(7)-C(12)-C(14)	110.83(19)	N(6)-C(61)-C(69)	122.2(3)
C(7)-C(12)-C(13)	112.3(2)	N(5)-C(62)-C(64)	114.7(9)
C(14)-C(12)-C(13)	109.3(2)	N(5)-C(62)-C(63)	112.9(8)
C(17)-C(15)-C(11)	111.2(2)	C(64)-C(62)-C(63)	112.6(7)
C(17)-C(15)-C(16)	109.9(2)	N(5)-C(62')-C(63')	105.4(13)
C(11)-C(15)-C(16)	110.4(2)	N(5)-C(62')-C(64')	104.7(13)
C(19)-C(18)-C(23)	121.0(2)	C(63')-C(62')-C(64')	111.9(15)
C(19)-C(18)-N(2)	120.6(2)	N(6)-C(65)-C(66)	111.8(4)
C(23)-C(18)-N(2)	118.3(2)	N(6)-C(65)-C(67)	107.4(5)
C(18)-C(19)-C(20)	118.0(2)	C(66)-C(65)-C(67)	111.9(5)
C(18)-C(19)-C(24)	123.1(2)	N(6)-C(65')-C(67')	124(3)
C(20)-C(19)-C(24)	118.9(2)	N(6)-C(65')-C(66')	100(2)
C(21)-C(20)-C(19)	121.5(2)	C(67')-C(65')-C(66')	105(3)
C(20)-C(21)-C(22)	119.7(2)	C21-C11-C61	120.3(3)
C(21)-C(22)-C(23)	121.4(2)	C11-C21-C31	119.7(3)
C(22)-C(23)-C(18)	118.3(2)	C41-C31-C21	120.2(3)
C(22)-C(23)-C(27)	120.5(2)	C31-C41-C51	119.8(3)
C(18)-C(23)-C(27)	121.2(2)	C61-C51-C41	120.3(3)
C(19)-C(24)-C(26)	110.7(2)	C51-C61-C11	119.7(3)

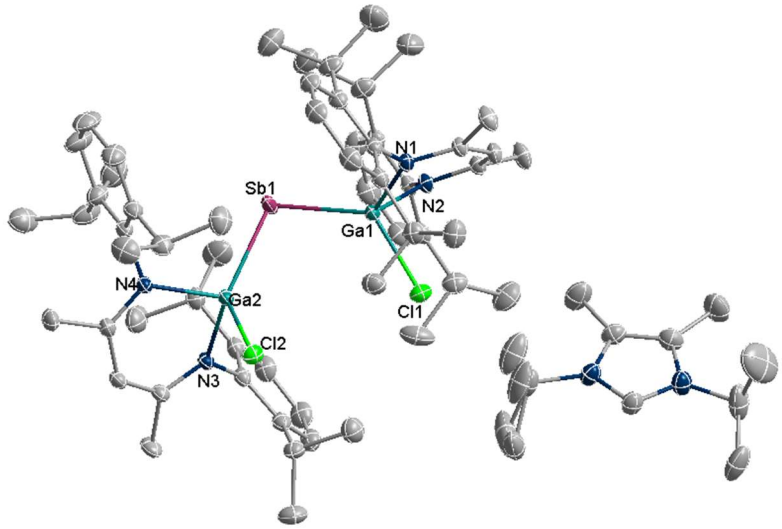

Fig. S39. Solid state structure of **2**. Hydrogen atoms and minor component of the disorder are omitted for clarity. Displacement ellipsoids drawn at 50% probability levels.

Table S8: Bond lengths [Å] for **2** (jk_186m).

Sb(1)-Ga(1)	2.5169(3)	C(19)-C(20)	1.402(2)	C(61)-C(66)	1.492(3)
Sb(1)-Ga(2)	2.5186(3)	C(19)-C(24)	1.511(3)	C(62)-C(63)	1.500(4)
Ga(1)-N(1)	2.0153(12)	C(20)-C(21)	1.374(3)	C(62)-C(64)	1.518(4)
Ga(1)-N(2)	2.0166(14)	C(21)-C(22)	1.383(3)	C(67)-C(69)	1.466(9)
Ga(1)-Cl(1)	2.2611(5)	C(22)-C(23)	1.393(3)	C(67)-C(68')	1.476(6)
Ga(2)-N(4)	1.9985(14)	C(23)-C(27)	1.521(3)	C(67)-C(69')	1.516(6)
Ga(2)-N(3)	2.0117(12)	C(24)-C(25)	1.522(3)	C(67)-C(68)	1.564(8)
Ga(2)-Cl(2)	2.3012(5)	C(24)-C(26)	1.539(3)	C11-C21	1.374(5)
N(1)-C(1)	1.326(2)	C(27)-C(29)	1.524(3)	C11-C61	1.375(5)
N(1)-C(6)	1.447(2)	C(27)-C(28)	1.524(3)	C21-C31	1.366(4)
N(2)-C(3)	1.329(2)	C(30)-C(31)	1.401(2)	C31-C41	1.353(4)
N(2)-C(18)	1.440(2)	C(30)-C(33)	1.512(2)	C41-C51	1.346(4)
N(3)-C(30)	1.330(2)	C(31)-C(32)	1.399(2)	C51-C61	1.358(5)
N(3)-C(35)	1.446(2)	C(32)-C(34)	1.508(2)	C12-C22	1.351(13)
N(4)-C(32)	1.329(2)	C(35)-C(36)	1.408(3)	C12-C62	1.386(12)
N(4)-C(47)	1.446(2)	C(35)-C(40)	1.409(3)	C22-C32	1.375(11)
N(5)-C(59)	1.326(3)	C(36)-C(37)	1.397(2)	C32-C42	1.376(10)
N(5)-C(60)	1.387(3)	C(36)-C(41)	1.519(3)	C42-C52	1.381(10)
N(5)-C(62)	1.483(3)	C(37)-C(38)	1.383(3)	C52-C62	1.382(12)
N(6)-C(59)	1.326(2)	C(38)-C(39)	1.377(3)	C13-C23	1.349(6)
N(6)-C(61)	1.381(3)	C(39)-C(40)	1.398(2)	C13-C63	1.366(6)
N(6)-C(67)	1.484(3)	C(40)-C(44)	1.514(3)	C23-C33	1.325(5)
C(1)-C(2)	1.404(2)	C(41)-C(42)	1.528(3)	C33-C43	1.336(5)
C(1)-C(4)	1.511(2)	C(41)-C(43)	1.533(3)	C43-C53	1.369(6)
C(2)-C(3)	1.401(2)	C(44)-C(45)	1.526(3)	C53-C63	1.360(6)
C(3)-C(5)	1.511(2)	C(44)-C(46)	1.528(3)	C14-C64	1.366(4)

C(6)-C(7)	1.404(3)	C(47)-C(52)	1.396(3)	C14-C24	1.369(4)
C(6)-C(11)	1.406(3)	C(47)-C(48)	1.408(2)	C24-C34	1.376(4)
C(7)-C(8)	1.402(2)	C(48)-C(49)	1.398(3)	C34-C44	1.364(5)
C(7)-C(12)	1.515(3)	C(48)-C(53)	1.511(3)	C44-C54	1.346(5)
C(8)-C(9)	1.379(3)	C(49)-C(50)	1.373(3)	C54-C64	1.351(4)
C(9)-C(10)	1.377(3)	C(50)-C(51)	1.377(3)	C15-C35#1	1.356(5)
C(10)-C(11)	1.402(2)	C(51)-C(52)	1.394(3)	C15-C25	1.373(5)
C(11)-C(15)	1.510(3)	C(52)-C(56)	1.527(3)	C25-C35	1.376(5)
C(12)-C(14)	1.527(3)	C(53)-C(54)	1.521(3)	C16-C26	1.361(11)
C(12)-C(13)	1.540(3)	C(53)-C(55)	1.531(3)	C16-C66	1.374(12)
C(15)-C(16)	1.517(3)	C(56)-C(57)	1.524(3)	C26-C36	1.376(13)
C(15)-C(17)	1.519(3)	C(56)-C(58)	1.527(3)	C36-C46	1.358(13)
C(18)-C(23)	1.401(3)	C(60)-C(61)	1.356(3)	C46-C56	1.352(14)
C(18)-C(19)	1.406(2)	C(60)-C(65)	1.484(3)	C56-C66	1.349(14

Table S9: Bond angles [°] for **2** (jk_186m).

Ga(1)-Sb(1)-Ga(2)	104.534(9)	C(40)-C(35)-N(3)	118.49(15)
N(1)-Ga(1)-N(2)	92.64(5)	C(37)-C(36)-C(35)	118.16(18)
N(1)-Ga(1)-Cl(1)	97.50(4)	C(37)-C(36)-C(41)	119.17(17)
N(2)-Ga(1)-Cl(1)	98.25(4)	C(35)-C(36)-C(41)	122.65(15)
N(1)-Ga(1)-Sb(1)	120.92(4)	C(38)-C(37)-C(36)	121.28(19)
N(2)-Ga(1)-Sb(1)	112.97(4)	C(39)-C(38)-C(37)	119.73(17)
Cl(1)-Ga(1)-Sb(1)	127.387(14)	C(38)-C(39)-C(40)	121.60(19)
N(4)-Ga(2)-N(3)	92.52(5)	C(39)-C(40)-C(35)	117.93(18)
N(4)-Ga(2)-Cl(2)	99.47(4)	C(39)-C(40)-C(44)	120.07(17)
N(3)-Ga(2)-Cl(2)	96.77(4)	C(35)-C(40)-C(44)	121.92(15)
N(4)-Ga(2)-Sb(1)	109.26(4)	C(36)-C(41)-C(42)	109.72(16)
N(3)-Ga(2)-Sb(1)	123.53(4)	C(36)-C(41)-C(43)	113.15(14)
Cl(2)-Ga(2)-Sb(1)	127.800(14)	C(42)-C(41)-C(43)	109.57(17)
C(1)-N(1)-C(6)	117.86(12)	C(40)-C(44)-C(45)	112.89(17)
C(1)-N(1)-Ga(1)	120.19(10)	C(40)-C(44)-C(46)	110.29(16)
C(6)-N(1)-Ga(1)	121.64(10)	C(45)-C(44)-C(46)	110.94(18)
C(3)-N(2)-C(18)	120.22(14)	C(52)-C(47)-C(48)	121.11(16)
C(3)-N(2)-Ga(1)	120.72(11)	C(52)-C(47)-N(4)	119.05(14)
C(18)-N(2)-Ga(1)	118.86(10)	C(48)-C(47)-N(4)	119.85(16)
C(30)-N(3)-C(35)	117.38(13)	C(49)-C(48)-C(47)	117.76(18)
C(30)-N(3)-Ga(2)	120.01(11)	C(49)-C(48)-C(53)	119.29(15)
C(35)-N(3)-Ga(2)	122.36(10)	C(47)-C(48)-C(53)	122.96(15)
C(32)-N(4)-C(47)	118.11(14)	C(50)-C(49)-C(48)	121.63(17)
C(32)-N(4)-Ga(2)	120.99(11)	C(49)-C(50)-C(51)	119.78(18)
C(47)-N(4)-Ga(2)	120.86(10)	C(50)-C(51)-C(52)	121.2(2)
C(59)-N(5)-C(60)	108.68(17)	C(51)-C(52)-C(47)	118.55(17)
C(59)-N(5)-C(62)	125.72(18)	C(51)-C(52)-C(56)	118.40(18)

C(60)-N(5)-C(62)	125.55(18)	C(47)-C(52)-C(56)	123.05(16)
C(59)-N(6)-C(61)	108.89(17)	C(48)-C(53)-C(54)	111.16(17)
C(59)-N(6)-C(67)	125.18(17)	C(48)-C(53)-C(55)	111.65(18)
C(61)-N(6)-C(67)	125.88(17)	C(54)-C(53)-C(55)	109.74(16)
N(1)-C(1)-C(2)	124.24(14)	C(57)-C(56)-C(58)	110.04(18)
N(1)-C(1)-C(4)	120.23(15)	C(57)-C(56)-C(52)	111.04(18)
C(2)-C(1)-C(4)	115.50(14)	C(58)-C(56)-C(52)	111.79(19)
C(3)-C(2)-C(1)	128.29(15)	N(6)-C(59)-N(5)	108.80(18)
N(2)-C(3)-C(2)	123.21(15)	C(61)-C(60)-N(5)	106.74(18)
N(2)-C(3)-C(5)	120.38(14)	C(61)-C(60)-C(65)	130.3(2)
C(2)-C(3)-C(5)	116.39(14)	N(5)-C(60)-C(65)	123.0(2)
C(7)-C(6)-C(11)	120.97(15)	C(60)-C(61)-N(6)	106.88(17)
C(7)-C(6)-N(1)	120.49(15)	C(60)-C(61)-C(66)	130.5(2)
C(11)-C(6)-N(1)	118.54(16)	N(6)-C(61)-C(66)	122.55(19)
C(8)-C(7)-C(6)	118.10(17)	N(5)-C(62)-C(63)	111.0(2)
C(8)-C(7)-C(12)	118.73(17)	N(5)-C(62)-C(64)	108.6(2)
C(6)-C(7)-C(12)	123.14(15)	C(63)-C(62)-C(64)	112.2(2)
C(9)-C(8)-C(7)	121.70(18)	C(69)-C(67)-N(6)	112.8(5)
C(10)-C(9)-C(8)	119.37(17)	C(68')-C(67)-N(6)	109.4(3)
C(9)-C(10)-C(11)	121.60(18)	C(68')-C(67)-C(69')	115.3(4)
C(10)-C(11)-C(6)	118.19(17)	N(6)-C(67)-C(69')	110.2(3)
C(10)-C(11)-C(15)	120.31(17)	C(69)-C(67)-C(68)	112.6(7)
C(6)-C(11)-C(15)	121.47(15)	N(6)-C(67)-C(68)	108.1(4)
C(7)-C(12)-C(14)	109.97(16)	C21-C11-C61	119.3(3)
C(7)-C(12)-C(13)	112.69(15)	C31-C21-C11	119.9(3)
C(14)-C(12)-C(13)	109.95(17)	C41-C31-C21	120.0(3)
C(11)-C(15)-C(16)	111.57(18)	C51-C41-C31	120.4(3)
C(11)-C(15)-C(17)	113.01(18)	C41-C51-C61	120.9(3)
C(16)-C(15)-C(17)	110.32(19)	C51-C61-C11	119.6(3)
C(23)-C(18)-C(19)	121.06(15)	C22-C12-C62	122.8(10)
C(23)-C(18)-N(2)	118.25(14)	C12-C22-C32	117.8(11)
C(19)-C(18)-N(2)	120.59(16)	C22-C32-C42	121.5(10)
C(20)-C(19)-C(18)	117.96(18)	C32-C42-C52	119.9(10)
C(20)-C(19)-C(24)	119.11(16)	C42-C52-C62	119.2(11)
C(18)-C(19)-C(24)	122.91(15)	C52-C62-C12	118.8(10)
C(21)-C(20)-C(19)	121.41(17)	C23-C13-C63	120.8(4)
C(20)-C(21)-C(22)	119.92(17)	C33-C23-C13	119.9(4)
C(21)-C(22)-C(23)	121.0(2)	C23-C33-C43	121.2(4)
C(22)-C(23)-C(18)	118.64(17)	C33-C43-C53	119.9(4)
C(22)-C(23)-C(27)	120.28(18)	C63-C53-C43	119.8(4)
C(18)-C(23)-C(27)	121.06(15)	C53-C63-C13	118.5(4)
C(19)-C(24)-C(25)	110.41(18)	C64-C14-C24	119.7(3)
C(19)-C(24)-C(26)	112.16(18)	C14-C24-C34	119.3(3)

C(25)-C(24)-C(26)	110.18(18)	C44-C34-C24	119.6(3)
C(23)-C(27)-C(29)	110.62(17)	C54-C44-C34	120.9(3)
C(23)-C(27)-C(28)	113.62(17)	C44-C54-C64	119.8(3)
C(29)-C(27)-C(28)	109.89(18)	C54-C64-C14	120.8(3)
N(3)-C(30)-C(31)	124.01(14)	C35#1-C15-C25	120.7(3)
N(3)-C(30)-C(33)	120.44(15)	C15-C25-C35	120.1(3)
C(31)-C(30)-C(33)	115.52(15)	C15#1-C35-C25	119.3(3)
C(32)-C(31)-C(30)	128.00(15)	C26-C16-C66	120.0(12)
N(4)-C(32)-C(31)	123.01(15)	C16-C26-C36	116.0(12)
N(4)-C(32)-C(34)	119.75(14)	C46-C36-C26	124.6(12)
C(31)-C(32)-C(34)	117.22(14)	C56-C46-C36	117.8(12)
C(36)-C(35)-C(40)	121.04(16)	C66-C56-C46	119.6(13)
C(36)-C(35)-N(3)	120.40(16)	C56-C66-C16	122.0(13)

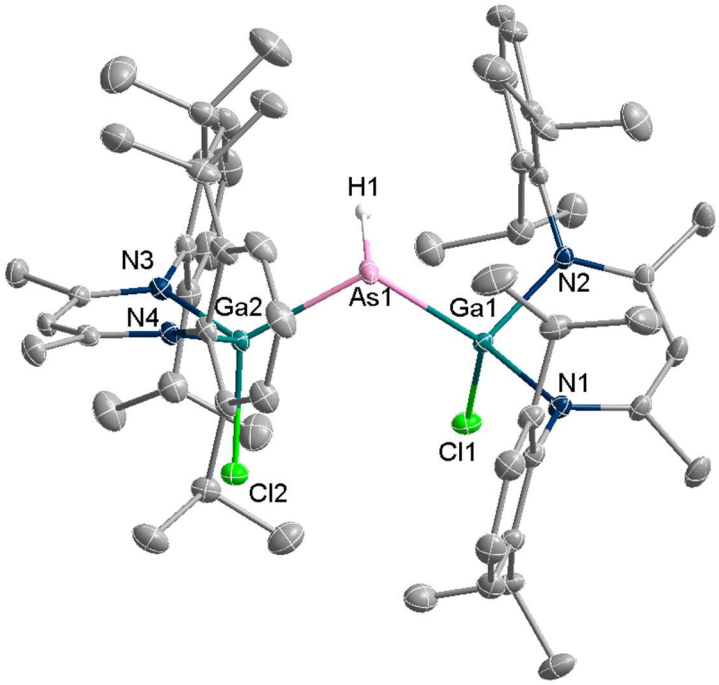

Fig. S40. Solid state structure of **5**. Hydrogen atoms except for As-H are omitted for clarity. H1 is displayed as sphere of arbitrary radius. Displacement ellipsoids drawn at 50% probability levels.

Table S10: Bond lengths [Å] for **5** (jk_460m).

As(1)-Ga(2)	2.4000(6)	C(9)-C(10)	1.385(3)	C(36)-C(37)	1.406(3)
As(1)-Ga(1)	2.4156(5)	C(10)-C(11)	1.400(3)	C(36)-C(41)	1.521(3)
Ga(1)-N(1)	1.9505(16)	C(11)-C(15)	1.524(3)	C(37)-C(38)	1.381(4)
Ga(1)-N(2)	1.9648(16)	C(12)-C(14)	1.527(3)	C(38)-C(39)	1.389(4)
Ga(1)-Cl(1)	2.2320(6)	C(12)-C(13)	1.534(3)	C(39)-C(40)	1.405(3)
Ga(2)-N(3)	1.9557(17)	C(15)-C(16)	1.531(4)	C(40)-C(44)	1.528(3)
Ga(2)-N(4)	1.9836(15)	C(15)-C(17)	1.537(3)	C(41)-C(43)	1.534(3)
Ga(2)-Cl(2)	2.2104(6)	C(18)-C(19)	1.406(3)	C(41)-C(42)	1.540(3)
N(1)-C(1)	1.339(2)	C(18)-C(23)	1.421(3)	C(44)-C(46)	1.523(3)
N(1)-C(6)	1.449(2)	C(19)-C(20)	1.394(3)	C(44)-C(45)	1.532(4)
N(2)-C(3)	1.332(2)	C(19)-C(24)	1.526(3)	C(47)-C(48)	1.404(3)
N(2)-C(18)	1.446(2)	C(20)-C(21)	1.393(3)	C(47)-C(52)	1.418(3)
N(3)-C(30)	1.337(2)	C(21)-C(22)	1.383(3)	C(48)-C(49)	1.401(3)
N(3)-C(35)	1.456(2)	C(22)-C(23)	1.396(3)	C(48)-C(53)	1.523(3)
N(4)-C(32)	1.327(2)	C(23)-C(27)	1.522(3)	C(49)-C(50)	1.397(3)
N(4)-C(47)	1.449(2)	C(24)-C(26)	1.536(3)	C(50)-C(51)	1.384(4)
C(1)-C(2)	1.402(3)	C(24)-C(25)	1.548(3)	C(51)-C(52)	1.400(3)
C(1)-C(4)	1.513(3)	C(27)-C(28)	1.525(3)	C(52)-C(56)	1.517(3)
C(2)-C(3)	1.401(3)	C(27)-C(29)	1.544(3)	C(53)-C(55)	1.532(3)
C(3)-C(5)	1.519(3)	C(30)-C(31)	1.411(3)	C(53)-C(54)	1.540(3)
C(6)-C(11)	1.412(3)	C(30)-C(33)	1.510(3)	C(56)-C(58)	1.531(3)
C(6)-C(7)	1.416(3)	C(31)-C(32)	1.402(3)	C(56)-C(57)	1.539(3)
C(7)-C(8)	1.397(3)	C(32)-C(34)	1.519(3)	C11-C11#1	1.524(9)
C(7)-C(12)	1.532(3)	C(35)-C(40)	1.414(3)	C11-C21	1.543(5)
C(8)-C(9)	1.399(3)	C(35)-C(36)	1.416(3)	C21-C31	1.542(6)

Table S11: Bond angles [°] for **5** (jk_460m).

Ga(2)-As(1)-Ga(1)	110.566(13)	C(22)-C(21)-C(20)	120.19(19)
N(1)-Ga(1)-N(2)	96.15(7)	C(21)-C(22)-C(23)	121.17(19)
N(1)-Ga(1)-Cl(1)	102.60(5)	C(22)-C(23)-C(18)	117.77(18)
N(2)-Ga(1)-Cl(1)	104.71(5)	C(22)-C(23)-C(27)	120.55(18)
N(1)-Ga(1)-As(1)	119.04(5)	C(18)-C(23)-C(27)	121.68(17)
N(2)-Ga(1)-As(1)	107.62(5)	C(19)-C(24)-C(26)	108.85(17)
Cl(1)-Ga(1)-As(1)	122.75(2)	C(19)-C(24)-C(25)	112.88(17)
N(3)-Ga(2)-N(4)	96.14(7)	C(26)-C(24)-C(25)	110.58(17)
N(3)-Ga(2)-Cl(2)	103.51(5)	C(23)-C(27)-C(28)	111.79(17)
N(4)-Ga(2)-Cl(2)	104.13(5)	C(23)-C(27)-C(29)	112.55(19)
N(3)-Ga(2)-As(1)	119.41(5)	C(28)-C(27)-C(29)	109.74(19)
N(4)-Ga(2)-As(1)	107.50(4)	N(3)-C(30)-C(31)	124.45(17)
Cl(2)-Ga(2)-As(1)	122.145(19)	N(3)-C(30)-C(33)	119.12(17)
C(1)-N(1)-C(6)	118.67(16)	C(31)-C(30)-C(33)	116.43(17)

C(1)-N(1)-Ga(1)	118.61(13)
C(6)-N(1)-Ga(1)	122.69(12)
C(3)-N(2)-C(18)	118.25(15)
C(3)-N(2)-Ga(1)	119.34(13)
C(18)-N(2)-Ga(1)	122.09(12)
C(30)-N(3)-C(35)	118.64(16)
C(30)-N(3)-Ga(2)	118.49(13)
C(35)-N(3)-Ga(2)	122.58(12)
C(32)-N(4)-C(47)	119.61(15)
C(32)-N(4)-Ga(2)	119.50(12)
C(47)-N(4)-Ga(2)	120.80(11)
N(1)-C(1)-C(2)	124.17(17)
N(1)-C(1)-C(4)	119.80(17)
C(2)-C(1)-C(4)	116.03(17)
C(3)-C(2)-C(1)	128.29(18)
N(2)-C(3)-C(2)	123.39(17)
N(2)-C(3)-C(5)	119.92(17)
C(2)-C(3)-C(5)	116.68(17)
C(11)-C(6)-C(7)	121.56(17)
C(11)-C(6)-N(1)	118.11(17)
C(7)-C(6)-N(1)	120.31(16)
C(8)-C(7)-C(6)	117.38(18)
C(8)-C(7)-C(12)	119.69(18)
C(6)-C(7)-C(12)	122.92(17)
C(7)-C(8)-C(9)	121.76(19)
C(10)-C(9)-C(8)	119.86(19)
C(9)-C(10)-C(11)	120.78(19)
C(10)-C(11)-C(6)	118.61(18)
C(10)-C(11)-C(15)	119.41(18)
C(6)-C(11)-C(15)	121.92(17)
C(14)-C(12)-C(7)	110.28(17)
C(14)-C(12)-C(13)	109.42(18)
C(7)-C(12)-C(13)	112.56(17)
C(11)-C(15)-C(16)	110.69(18)
C(11)-C(15)-C(17)	112.4(2)
C(16)-C(15)-C(17)	110.1(2)
C(19)-C(18)-C(23)	121.64(17)
C(19)-C(18)-N(2)	119.42(16)
C(23)-C(18)-N(2)	118.92(16)
C(20)-C(19)-C(18)	118.00(18)
C(20)-C(19)-C(24)	118.94(17)
C(18)-C(19)-C(24)	123.00(17)
C(21)-C(20)-C(19)	121.11(19)
C(32)-C(31)-C(30)	128.70(17)
N(4)-C(32)-C(31)	123.02(16)
N(4)-C(32)-C(34)	120.01(17)
C(31)-C(32)-C(34)	116.98(17)
C(40)-C(35)-C(36)	121.73(17)
C(40)-C(35)-N(3)	117.62(17)
C(36)-C(35)-N(3)	120.64(17)
C(37)-C(36)-C(35)	118.0(2)
C(37)-C(36)-C(41)	118.95(19)
C(35)-C(36)-C(41)	123.04(17)
C(38)-C(37)-C(36)	121.1(2)
C(37)-C(38)-C(39)	120.2(2)
C(38)-C(39)-C(40)	121.6(2)
C(39)-C(40)-C(35)	117.4(2)
C(39)-C(40)-C(44)	120.66(19)
C(35)-C(40)-C(44)	121.92(17)
C(36)-C(41)-C(43)	109.80(19)
C(36)-C(41)-C(42)	113.0(2)
C(43)-C(41)-C(42)	109.88(19)
C(46)-C(44)-C(40)	112.9(2)
C(46)-C(44)-C(45)	109.8(2)
C(40)-C(44)-C(45)	111.8(2)
C(48)-C(47)-C(52)	121.20(17)
C(48)-C(47)-N(4)	120.71(16)
C(52)-C(47)-N(4)	118.07(17)
C(49)-C(48)-C(47)	118.11(18)
C(49)-C(48)-C(53)	119.31(19)
C(47)-C(48)-C(53)	122.58(17)
C(50)-C(49)-C(48)	121.4(2)
C(51)-C(50)-C(49)	119.68(19)
C(50)-C(51)-C(52)	121.09(19)
C(51)-C(52)-C(47)	118.5(2)
C(51)-C(52)-C(56)	119.96(18)
C(47)-C(52)-C(56)	121.57(17)
C(48)-C(53)-C(55)	111.26(18)
C(48)-C(53)-C(54)	111.12(16)
C(55)-C(53)-C(54)	110.11(19)
C(52)-C(56)-C(58)	112.7(2)
C(52)-C(56)-C(57)	111.68(18)
C(58)-C(56)-C(57)	109.94(18)
C11#1-C11-C21	111.8(5)
C31-C21-C11	111.8(4)

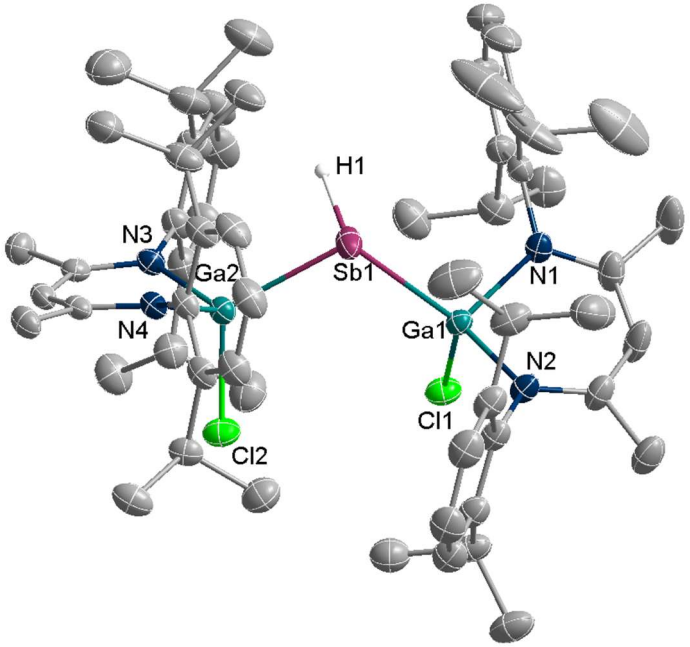

Fig. S41. Solid state structure of **6**. Hydrogen atoms except for Sb-H are omitted for clarity. H1 is displayed as sphere of arbitrary radius. Displacement ellipsoids drawn at 50% probability levels.

Table S12: Bond lengths [Å] for **6** (jk_489m).

Sb(1)-Ga(2)	2.5669(3)	C(9)-C(10)	1.369(5)	C(36)-C(37)	1.393(4)
Sb(1)-Ga(1)	2.5803(3)	C(10)-C(11)	1.390(4)	C(36)-C(41)	1.525(4)
Ga(1)-N(2)	1.9552(19)	C(11)-C(15)	1.515(4)	C(37)-C(38)	1.380(5)
Ga(1)-N(1)	1.9571(19)	C(12)-C(14)	1.526(4)	C(38)-C(39)	1.371(5)
Ga(1)-Cl(1)	2.2161(6)	C(12)-C(13)	1.538(4)	C(39)-C(40)	1.401(4)
Ga(2)-N(3)	1.9613(19)	C(15)-C(16)	1.504(7)	C(40)-C(44)	1.515(4)
Ga(2)-N(4)	1.9702(18)	C(15)-C(17)	1.530(6)	C(41)-C(43)	1.521(4)
Ga(2)-Cl(2)	2.2012(6)	C(18)-C(19)	1.407(4)	C(41)-C(42)	1.533(5)
N(1)-C(1)	1.328(3)	C(18)-C(23)	1.408(3)	C(44)-C(46)	1.533(4)
N(1)-C(6)	1.448(3)	C(19)-C(20)	1.401(3)	C(44)-C(45)	1.538(4)
N(2)-C(3)	1.338(3)	C(19)-C(24)	1.524(4)	C(47)-C(52)	1.402(3)
N(2)-C(18)	1.449(3)	C(20)-C(21)	1.384(4)	C(47)-C(48)	1.410(3)
N(3)-C(30)	1.331(3)	C(21)-C(22)	1.373(4)	C(48)-C(49)	1.397(4)
N(3)-C(35)	1.452(3)	C(22)-C(23)	1.397(3)	C(48)-C(53)	1.517(4)
N(4)-C(32)	1.328(3)	C(23)-C(27)	1.510(4)	C(49)-C(50)	1.381(4)
N(4)-C(47)	1.449(3)	C(24)-C(26)	1.530(4)	C(50)-C(51)	1.381(4)
C(1)-C(2)	1.397(4)	C(24)-C(25)	1.534(4)	C(51)-C(52)	1.398(3)
C(1)-C(4)	1.510(4)	C(27)-C(29)	1.522(4)	C(52)-C(56)	1.521(3)
C(2)-C(3)	1.402(4)	C(27)-C(28)	1.524(5)	C(53)-C(54)	1.530(4)
C(3)-C(5)	1.512(3)	C(30)-C(31)	1.407(3)	C(53)-C(55)	1.532(4)
C(6)-C(7)	1.397(3)	C(30)-C(33)	1.504(3)	C(56)-C(58)	1.528(4)
C(6)-C(11)	1.405(4)	C(31)-C(32)	1.396(3)	C(56)-C(57)	1.533(3)

C(7)-C(8)	1.395(4)	C(32)-C(34)	1.510(3)	C11-C11#1	1.516(10)
C(7)-C(12)	1.512(4)	C(35)-C(36)	1.405(3)	C11-C21	1.546(6)
C(8)-C(9)	1.371(5)	C(35)-C(40)	1.407(4)	C21-C31	1.533(7)

Table S13: Bond angles [°] for **6** (jk_489m).

Ga(2)-Sb(1)-Ga(1)	107.412(10)	C(22)-C(21)-C(20)	120.0(2)
N(2)-Ga(1)-N(1)	96.04(8)	C(21)-C(22)-C(23)	121.4(3)
N(2)-Ga(1)-Cl(1)	102.85(6)	C(22)-C(23)-C(18)	117.9(2)
N(1)-Ga(1)-Cl(1)	104.81(6)	C(22)-C(23)-C(27)	120.0(2)
N(2)-Ga(1)-Sb(1)	121.54(6)	C(18)-C(23)-C(27)	122.1(2)
N(1)-Ga(1)-Sb(1)	105.38(6)	C(19)-C(24)-C(26)	110.1(2)
Cl(1)-Ga(1)-Sb(1)	122.00(2)	C(19)-C(24)-C(25)	112.5(2)
N(3)-Ga(2)-N(4)	96.09(8)	C(26)-C(24)-C(25)	109.7(2)
N(3)-Ga(2)-Cl(2)	103.88(6)	C(23)-C(27)-C(29)	112.8(3)
N(4)-Ga(2)-Cl(2)	104.63(6)	C(23)-C(27)-C(28)	111.1(2)
N(3)-Ga(2)-Sb(1)	119.88(5)	C(29)-C(27)-C(28)	110.2(3)
N(4)-Ga(2)-Sb(1)	108.07(5)	N(3)-C(30)-C(31)	123.9(2)
Cl(2)-Ga(2)-Sb(1)	120.62(2)	N(3)-C(30)-C(33)	119.4(2)
C(1)-N(1)-C(6)	119.3(2)	C(31)-C(30)-C(33)	116.7(2)
C(1)-N(1)-Ga(1)	119.18(17)	C(32)-C(31)-C(30)	129.1(2)
C(6)-N(1)-Ga(1)	121.27(14)	N(4)-C(32)-C(31)	123.2(2)
C(3)-N(2)-C(18)	118.68(19)	N(4)-C(32)-C(34)	119.9(2)
C(3)-N(2)-Ga(1)	118.45(15)	C(31)-C(32)-C(34)	117.0(2)
C(18)-N(2)-Ga(1)	122.79(15)	C(36)-C(35)-C(40)	121.5(2)
C(30)-N(3)-C(35)	118.65(19)	C(36)-C(35)-N(3)	118.1(2)
C(30)-N(3)-Ga(2)	118.80(15)	C(40)-C(35)-N(3)	120.4(2)
C(35)-N(3)-Ga(2)	122.28(15)	C(37)-C(36)-C(35)	117.9(3)
C(32)-N(4)-C(47)	120.15(18)	C(37)-C(36)-C(41)	120.6(2)
C(32)-N(4)-Ga(2)	119.50(15)	C(35)-C(36)-C(41)	121.4(2)
C(47)-N(4)-Ga(2)	120.25(14)	C(38)-C(37)-C(36)	121.1(3)
N(1)-C(1)-C(2)	123.0(2)	C(39)-C(38)-C(37)	120.5(3)
N(1)-C(1)-C(4)	119.8(2)	C(38)-C(39)-C(40)	121.1(3)
C(2)-C(1)-C(4)	117.1(2)	C(39)-C(40)-C(35)	117.8(3)
C(1)-C(2)-C(3)	128.9(2)	C(39)-C(40)-C(44)	119.3(2)
N(2)-C(3)-C(2)	123.7(2)	C(35)-C(40)-C(44)	122.9(2)
N(2)-C(3)-C(5)	119.7(2)	C(43)-C(41)-C(36)	113.0(3)
C(2)-C(3)-C(5)	116.6(2)	C(43)-C(41)-C(42)	109.7(3)
C(7)-C(6)-C(11)	121.1(2)	C(36)-C(41)-C(42)	111.7(3)
C(7)-C(6)-N(1)	119.8(2)	C(40)-C(44)-C(46)	109.6(2)
C(11)-C(6)-N(1)	119.1(2)	C(40)-C(44)-C(45)	113.1(2)
C(8)-C(7)-C(6)	118.0(2)	C(46)-C(44)-C(45)	110.0(2)
C(8)-C(7)-C(12)	118.9(2)	C(52)-C(47)-C(48)	121.5(2)
C(6)-C(7)-C(12)	123.1(2)	C(52)-C(47)-N(4)	120.2(2)

C(9)-C(8)-C(7)	121.6(3)	C(48)-C(47)-N(4)	118.2(2)
C(10)-C(9)-C(8)	119.6(3)	C(49)-C(48)-C(47)	118.0(2)
C(9)-C(10)-C(11)	121.7(3)	C(49)-C(48)-C(53)	120.4(2)
C(10)-C(11)-C(6)	117.9(3)	C(47)-C(48)-C(53)	121.6(2)
C(10)-C(11)-C(15)	120.5(3)	C(50)-C(49)-C(48)	121.2(2)
C(6)-C(11)-C(15)	121.5(3)	C(49)-C(50)-C(51)	119.9(2)
C(7)-C(12)-C(14)	109.3(2)	C(50)-C(51)-C(52)	121.5(3)
C(7)-C(12)-C(13)	112.0(2)	C(51)-C(52)-C(47)	117.8(2)
C(14)-C(12)-C(13)	111.2(2)	C(51)-C(52)-C(56)	119.3(2)
C(16)-C(15)-C(11)	111.2(3)	C(47)-C(52)-C(56)	122.9(2)
C(16)-C(15)-C(17)	110.0(4)	C(48)-C(53)-C(54)	111.5(2)
C(11)-C(15)-C(17)	112.8(4)	C(48)-C(53)-C(55)	112.9(3)
C(19)-C(18)-C(23)	121.7(2)	C(54)-C(53)-C(55)	109.8(2)
C(19)-C(18)-N(2)	120.4(2)	C(52)-C(56)-C(58)	110.6(2)
C(23)-C(18)-N(2)	117.9(2)	C(52)-C(56)-C(57)	111.7(2)
C(20)-C(19)-C(18)	117.4(2)	C(58)-C(56)-C(57)	109.7(2)
C(20)-C(19)-C(24)	119.5(2)	C11#1-C11-C21	111.6(5)
C(18)-C(19)-C(24)	123.1(2)	C31-C21-C11	111.8(4)
C(21)-C(20)-C(19)	121.5(3)	C(22)-C(21)-C(20)	120.0(2)

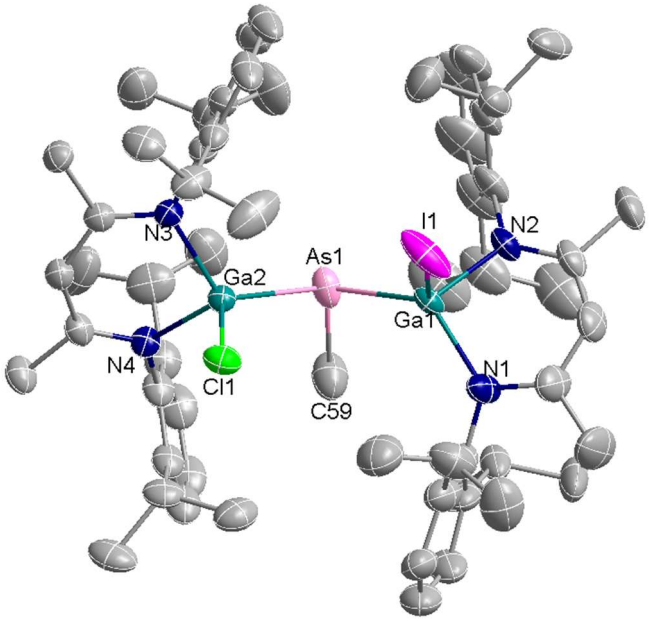

Fig. S42. Solid state structure of **7**. Hydrogen atoms and minor component of the disorder are omitted for clarity. Displacement ellipsoids drawn at 50% probability levels.

Table S14: Bond lengths [Å] for **7** (jk_577m).

I(1)-Ga(1)	2.5169(7)	C(10)-C(11)	1.397(10)	C(27)-C(29)	1.534(9)
Cl(1)-Ga(2)	2.193(5)	C(11)-C(15)	1.530(12)	C(30)-C(31)	1.402(5)
Cl(1')-Ga(1)	2.166(6)	C(12)-C(13)	1.540(10)	C(30)-C(33)	1.513(5)
I(1')-Ga(2)	2.5197(19)	C(12)-C(14)	1.548(10)	C(31)-C(32)	1.398(5)
As(1)-C(59)	1.939(6)	C(15)-C(16)	1.521(13)	C(32)-C(34)	1.510(5)
As(1)-Ga(2)	2.3946(6)	C(15)-C(17)	1.552(13)	C(35)-C(40)	1.400(6)
As(1)-Ga(1)	2.4232(6)	C(6')-C(7')	1.382(11)	C(35)-C(36)	1.413(6)
Ga(1)-N(1)	1.967(3)	C(6')-C(11')	1.393(10)	C(36)-C(37)	1.400(6)
Ga(1)-N(2)	1.975(3)	C(7')-C(8')	1.396(11)	C(36)-C(41)	1.505(7)
Ga(2)-N(3)	1.974(3)	C(7')-C(12')	1.510(12)	C(37)-C(38)	1.369(9)
Ga(2)-N(4)	1.976(3)	C(8')-C(9')	1.376(11)	C(38)-C(39)	1.377(9)
N(1)-C(1)	1.338(6)	C(9')-C(10')	1.381(11)	C(39)-C(40)	1.398(6)
N(1)-C(6')	1.418(16)	C(10')-C(11')	1.387(10)	C(40)-C(44)	1.529(7)
N(1)-C(6)	1.493(13)	C(11')-C(15')	1.501(13)	C(41)-C(43)	1.536(7)
N(2)-C(3)	1.321(5)	C(12')-C(14')	1.523(13)	C(41)-C(42)	1.544(6)
N(2)-C(18)	1.441(5)	C(12')-C(13')	1.544(12)	C(44)-C(45)	1.523(7)
N(3)-C(30)	1.323(5)	C(15')-C(16')	1.530(10)	C(44)-C(46)	1.539(7)
N(3)-C(35)	1.449(5)	C(15')-C(17')	1.534(11)	C(47)-C(52)	1.403(6)
N(4)-C(32)	1.333(5)	C(18)-C(19)	1.387(7)	C(47)-C(48)	1.405(6)
N(4)-C(47)	1.442(4)	C(18)-C(23)	1.414(7)	C(48)-C(49)	1.403(5)
C(1)-C(2)	1.389(7)	C(19)-C(20)	1.403(7)	C(48)-C(53)	1.509(6)
C(1)-C(4)	1.514(7)	C(19)-C(24)	1.515(7)	C(49)-C(50)	1.375(8)
C(2)-C(3)	1.401(7)	C(20)-C(21)	1.390(10)	C(50)-C(51)	1.382(8)
C(3)-C(5)	1.506(6)	C(21)-C(22)	1.329(11)	C(51)-C(52)	1.403(6)
C(6)-C(7)	1.390(10)	C(22)-C(23)	1.385(9)	C(52)-C(56)	1.514(7)
C(6)-C(11)	1.400(10)	C(23)-C(27)	1.522(9)	C(53)-C(55)	1.518(7)
C(7)-C(8)	1.397(9)	C(24)-C(26)	1.521(7)	C(53)-C(54)	1.532(6)
C(7)-C(12)	1.521(11)	C(24)-C(25)	1.536(6)	C(56)-C(58)	1.514(9)
C(8)-C(9)	1.372(10)	C(27)-C(28)	1.524(11)	C(56)-C(57)	1.520(9)
C(9)-C(10)	1.379(10)				

Table S15: Bond angles [°] for **7** (jk_577m).

C(59)-As(1)-Ga(2)	102.30(18)	C(10')-C(11')-C(15')	118.4(12)
C(59)-As(1)-Ga(1)	99.36(18)	C(6')-C(11')-C(15')	121.7(12)
Ga(2)-As(1)-Ga(1)	110.14(2)	C(7')-C(12')-C(14')	109.2(11)
N(1)-Ga(1)-N(2)	95.15(15)	C(7')-C(12')-C(13')	111.0(11)
N(1)-Ga(1)-Cl(1')	103.9(3)	C(14')-C(12')-C(13')	109.3(9)
N(2)-Ga(1)-Cl(1')	104.4(2)	C(11')-C(15')-C(16')	110.1(14)
N(1)-Ga(1)-As(1)	122.38(10)	C(11')-C(15')-C(17')	108.2(11)
N(2)-Ga(1)-As(1)	107.93(10)	C(16')-C(15')-C(17')	109.9(8)
Cl(1')-Ga(1)-As(1)	119.2(3)	C(19)-C(18)-C(23)	121.3(5)

N(1)-Ga(1)-I(1)	106.25(11)	C(19)-C(18)-N(2)	121.1(4)
N(2)-Ga(1)-I(1)	101.40(9)	C(23)-C(18)-N(2)	117.5(4)
As(1)-Ga(1)-I(1)	118.99(3)	C(18)-C(19)-C(20)	116.9(5)
N(3)-Ga(2)-N(4)	95.57(12)	C(18)-C(19)-C(24)	123.6(4)
N(3)-Ga(2)-Cl(1)	103.12(19)	C(20)-C(19)-C(24)	119.5(5)
N(4)-Ga(2)-Cl(1)	104.0(2)	C(21)-C(20)-C(19)	121.3(6)
N(3)-Ga(2)-As(1)	118.83(9)	C(22)-C(21)-C(20)	120.6(5)
N(4)-Ga(2)-As(1)	110.91(9)	C(21)-C(22)-C(23)	121.3(6)
Cl(1)-Ga(2)-As(1)	120.70(19)	C(22)-C(23)-C(18)	118.5(6)
N(3)-Ga(2)-I(1')	99.97(11)	C(22)-C(23)-C(27)	120.6(5)
N(4)-Ga(2)-I(1')	105.55(12)	C(18)-C(23)-C(27)	120.9(5)
As(1)-Ga(2)-I(1')	122.15(8)	C(19)-C(24)-C(26)	110.2(4)
C(1)-N(1)-C(6')	110.1(10)	C(19)-C(24)-C(25)	112.5(5)
C(1)-N(1)-C(6)	120.7(8)	C(26)-C(24)-C(25)	109.6(5)
C(1)-N(1)-Ga(1)	117.5(3)	C(23)-C(27)-C(28)	112.5(5)
C(6')-N(1)-Ga(1)	132.4(10)	C(23)-C(27)-C(29)	113.9(7)
C(6)-N(1)-Ga(1)	121.3(7)	C(28)-C(27)-C(29)	110.4(6)
C(3)-N(2)-C(18)	119.8(3)	N(3)-C(30)-C(31)	124.2(3)
C(3)-N(2)-Ga(1)	119.1(3)	N(3)-C(30)-C(33)	120.3(3)
C(18)-N(2)-Ga(1)	120.9(3)	C(31)-C(30)-C(33)	115.5(3)
C(30)-N(3)-C(35)	118.4(3)	C(32)-C(31)-C(30)	128.8(3)
C(30)-N(3)-Ga(2)	118.9(2)	N(4)-C(32)-C(31)	123.2(3)
C(35)-N(3)-Ga(2)	122.3(2)	N(4)-C(32)-C(34)	119.6(3)
C(32)-N(4)-C(47)	118.1(3)	C(31)-C(32)-C(34)	117.2(3)
C(32)-N(4)-Ga(2)	118.9(2)	C(40)-C(35)-C(36)	121.6(4)
C(47)-N(4)-Ga(2)	122.9(2)	C(40)-C(35)-N(3)	118.4(3)
N(1)-C(1)-C(2)	125.0(4)	C(36)-C(35)-N(3)	120.0(4)
N(1)-C(1)-C(4)	119.8(5)	C(37)-C(36)-C(35)	117.4(5)
C(2)-C(1)-C(4)	115.1(5)	C(37)-C(36)-C(41)	118.6(4)
C(1)-C(2)-C(3)	127.7(4)	C(35)-C(36)-C(41)	124.1(4)
N(2)-C(3)-C(2)	123.2(4)	C(38)-C(37)-C(36)	121.5(5)
N(2)-C(3)-C(5)	120.7(4)	C(37)-C(38)-C(39)	120.4(4)
C(2)-C(3)-C(5)	116.1(4)	C(38)-C(39)-C(40)	121.1(5)
C(7)-C(6)-C(11)	120.5(7)	C(39)-C(40)-C(35)	118.0(5)
C(7)-C(6)-N(1)	122.7(10)	C(39)-C(40)-C(44)	120.8(4)
C(11)-C(6)-N(1)	116.4(10)	C(35)-C(40)-C(44)	121.2(4)
C(6)-C(7)-C(8)	119.2(7)	C(36)-C(41)-C(43)	113.1(5)
C(6)-C(7)-C(12)	123.4(9)	C(36)-C(41)-C(42)	111.3(4)
C(8)-C(7)-C(12)	117.4(9)	C(43)-C(41)-C(42)	108.0(4)
C(9)-C(8)-C(7)	120.2(8)	C(45)-C(44)-C(40)	110.5(4)
C(8)-C(9)-C(10)	120.1(8)	C(45)-C(44)-C(46)	112.3(5)
C(9)-C(10)-C(11)	120.6(8)	C(40)-C(44)-C(46)	111.9(4)
C(10)-C(11)-C(6)	118.4(8)	C(52)-C(47)-C(48)	121.6(4)

C(10)-C(11)-C(15)	117.0(12)	C(52)-C(47)-N(4)	118.5(4)
C(6)-C(11)-C(15)	124.3(12)	C(48)-C(47)-N(4)	119.9(3)
C(7)-C(12)-C(13)	114.2(10)	C(49)-C(48)-C(47)	117.9(4)
C(7)-C(12)-C(14)	111.8(8)	C(49)-C(48)-C(53)	119.2(4)
C(13)-C(12)-C(14)	108.3(7)	C(47)-C(48)-C(53)	122.9(3)
C(16)-C(15)-C(11)	115.8(15)	C(50)-C(49)-C(48)	121.3(5)
C(16)-C(15)-C(17)	109.4(12)	C(49)-C(50)-C(51)	120.2(4)
C(11)-C(15)-C(17)	115.1(15)	C(50)-C(51)-C(52)	121.0(5)
C(7')-C(6')-C(11')	119.9(9)	C(51)-C(52)-C(47)	118.0(5)
C(7')-C(6')-N(1)	118.2(12)	C(51)-C(52)-C(56)	119.5(4)
C(11')-C(6')-N(1)	121.9(12)	C(47)-C(52)-C(56)	122.5(4)
C(6')-C(7')-C(8')	119.9(8)	C(48)-C(53)-C(55)	110.9(4)
C(6')-C(7')-C(12')	120.3(12)	C(48)-C(53)-C(54)	111.1(4)
C(8')-C(7')-C(12')	119.6(13)	C(55)-C(53)-C(54)	111.3(4)
C(9')-C(8')-C(7')	119.9(9)	C(52)-C(56)-C(58)	113.3(5)
C(8')-C(9')-C(10')	120.0(9)	C(52)-C(56)-C(57)	111.5(5)
C(9')-C(10')-C(11')	120.4(9)	C(58)-C(56)-C(57)	109.8(5)
C(10')-C(11')-C(6')	119.4(9)		

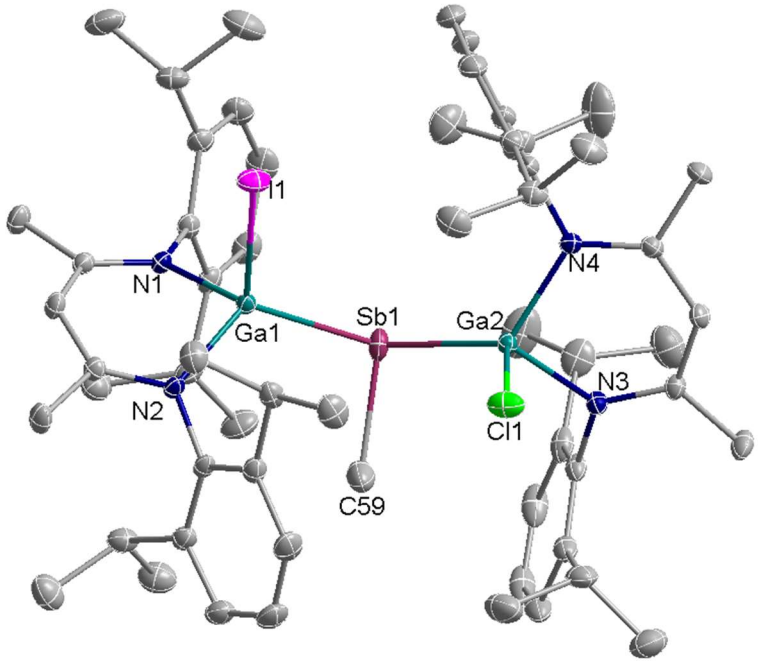

Fig. S43. Solid state structure of **8**. Hydrogen atoms and minor component of the disorder are omitted for clarity. Displacement ellipsoids drawn at 50% probability levels.

Table S16: Bond lengths [Å] for **8** (jk_573m).

I(1)-Ga(1)	2.5973(6)	C(7)-C(8)	1.402(3)	C(32)-C(34)	1.507(3)
Cl(1)-Ga(2)	2.2300(14)	C(7)-C(12)	1.524(3)	C(35)-C(36)	1.408(3)
I(1')-Ga(2)	2.495(5)	C(8)-C(9)	1.381(4)	C(35)-C(40)	1.411(3)
Cl(1')-Ga(1)	2.228(8)	C(9)-C(10)	1.390(4)	C(36)-C(37)	1.401(3)
Sb(1)-C(59)	2.164(3)	C(10)-C(11)	1.393(3)	C(36)-C(41)	1.526(4)
Sb(1)-Ga(1)	2.6118(6)	C(11)-C(15)	1.524(3)	C(37)-C(38)	1.384(4)
Sb(1)-Ga(2)	2.6132(5)	C(12)-C(14)	1.534(4)	C(38)-C(39)	1.387(5)
Ga(1)-N(2)	1.9700(17)	C(12)-C(13)	1.546(4)	C(39)-C(40)	1.397(3)
Ga(1)-N(1)	1.9942(17)	C(15)-C(17)	1.532(3)	C(40)-C(44)	1.522(4)
Ga(2)-N(4)	1.9544(18)	C(15)-C(16)	1.544(3)	C(41)-C(43)	1.535(4)
Ga(2)-N(3)	1.9759(18)	C(18)-C(19)	1.416(3)	C(41)-C(42)	1.540(4)
N(1)-C(1)	1.329(3)	C(18)-C(23)	1.418(3)	C(44)-C(45)	1.530(4)
N(1)-C(6)	1.449(3)	C(19)-C(20)	1.399(3)	C(44)-C(46)	1.537(4)
N(2)-C(3)	1.341(3)	C(19)-C(24)	1.528(3)	C(47)-C(48)	1.410(3)
N(2)-C(18)	1.451(3)	C(20)-C(21)	1.385(4)	C(47)-C(52)	1.414(3)
N(3)-C(30)	1.330(3)	C(21)-C(22)	1.380(4)	C(48)-C(49)	1.402(3)
N(3)-C(35)	1.443(3)	C(22)-C(23)	1.400(3)	C(48)-C(53)	1.525(3)
N(4)-C(32)	1.335(3)	C(23)-C(27)	1.530(3)	C(49)-C(50)	1.392(4)
N(4)-C(47)	1.452(3)	C(24)-C(26)	1.536(3)	C(50)-C(51)	1.379(4)
C(1)-C(2)	1.411(3)	C(24)-C(25)	1.537(3)	C(51)-C(52)	1.395(3)
C(1)-C(4)	1.513(3)	C(27)-C(29)	1.533(4)	C(52)-C(56)	1.521(3)
C(2)-C(3)	1.403(3)	C(27)-C(28)	1.538(4)	C(53)-C(55)	1.531(3)
C(3)-C(5)	1.510(3)	C(30)-C(31)	1.404(3)	C(53)-C(54)	1.539(3)
C(6)-C(7)	1.410(3)	C(30)-C(33)	1.510(3)	C(56)-C(57)	1.513(4)
C(6)-C(11)	1.415(3)	C(31)-C(32)	1.404(3)	C(56)-C(58)	1.530(4)

Table S17: Bond angles [°] for **8** (jk_573m).

C(59)-Sb(1)-Ga(1)	96.54(8)	C(23)-C(18)-N(2)	118.77(18)
C(59)-Sb(1)-Ga(2)	94.69(9)	C(20)-C(19)-C(18)	117.7(2)
Ga(1)-Sb(1)-Ga(2)	111.076(12)	C(20)-C(19)-C(24)	120.1(2)
N(2)-Ga(1)-N(1)	94.89(7)	C(18)-C(19)-C(24)	122.26(19)
N(2)-Ga(1)-Cl(1')	107.1(3)	C(21)-C(20)-C(19)	121.6(2)
N(1)-Ga(1)-Cl(1')	102.0(3)	C(22)-C(21)-C(20)	120.0(2)
N(2)-Ga(1)-I(1)	107.53(5)	C(21)-C(22)-C(23)	121.5(2)
N(1)-Ga(1)-I(1)	100.66(5)	C(22)-C(23)-C(18)	117.7(2)
N(2)-Ga(1)-Sb(1)	121.26(5)	C(22)-C(23)-C(27)	118.0(2)
N(1)-Ga(1)-Sb(1)	109.41(5)	C(18)-C(23)-C(27)	124.19(19)
Cl(1')-Ga(1)-Sb(1)	118.1(3)	C(19)-C(24)-C(26)	113.22(19)
I(1)-Ga(1)-Sb(1)	118.477(16)	C(19)-C(24)-C(25)	113.43(18)
N(4)-Ga(2)-N(3)	95.48(7)	C(26)-C(24)-C(25)	107.4(2)
N(4)-Ga(2)-Cl(1)	102.89(8)	C(23)-C(27)-C(29)	114.1(2)

N(3)-Ga(2)-Cl(1)	101.54(9)	C(23)-C(27)-C(28)	109.8(2)
N(4)-Ga(2)-I(1')	103.93(19)	C(29)-C(27)-C(28)	107.0(2)
N(3)-Ga(2)-I(1')	101.96(19)	N(3)-C(30)-C(31)	122.63(19)
N(4)-Ga(2)-Sb(1)	122.12(5)	N(3)-C(30)-C(33)	120.53(19)
N(3)-Ga(2)-Sb(1)	108.23(5)	C(31)-C(30)-C(33)	116.83(18)
Cl(1)-Ga(2)-Sb(1)	121.70(7)	C(32)-C(31)-C(30)	128.37(19)
I(1')-Ga(2)-Sb(1)	120.5(2)	N(4)-C(32)-C(31)	124.64(19)
C(1)-N(1)-C(6)	122.38(17)	N(4)-C(32)-C(34)	119.60(18)
C(1)-N(1)-Ga(1)	118.52(14)	C(31)-C(32)-C(34)	115.75(18)
C(6)-N(1)-Ga(1)	118.86(13)	C(36)-C(35)-C(40)	122.4(2)
C(3)-N(2)-C(18)	119.50(17)	C(36)-C(35)-N(3)	120.1(2)
C(3)-N(2)-Ga(1)	117.42(14)	C(40)-C(35)-N(3)	117.3(2)
C(18)-N(2)-Ga(1)	123.06(13)	C(37)-C(36)-C(35)	117.4(2)
C(30)-N(3)-C(35)	120.35(17)	C(37)-C(36)-C(41)	118.6(2)
C(30)-N(3)-Ga(2)	121.01(14)	C(35)-C(36)-C(41)	124.0(2)
C(35)-N(3)-Ga(2)	118.59(13)	C(38)-C(37)-C(36)	121.2(3)
C(32)-N(4)-C(47)	119.80(17)	C(37)-C(38)-C(39)	120.3(2)
C(32)-N(4)-Ga(2)	120.07(14)	C(38)-C(39)-C(40)	121.2(3)
C(47)-N(4)-Ga(2)	119.98(13)	C(39)-C(40)-C(35)	117.4(3)
N(1)-C(1)-C(2)	123.08(18)	C(39)-C(40)-C(44)	120.3(2)
N(1)-C(1)-C(4)	120.96(19)	C(35)-C(40)-C(44)	122.3(2)
C(2)-C(1)-C(4)	115.94(18)	C(36)-C(41)-C(43)	112.1(2)
C(3)-C(2)-C(1)	128.00(19)	C(36)-C(41)-C(42)	111.1(2)
N(2)-C(3)-C(2)	123.87(18)	C(43)-C(41)-C(42)	109.3(2)
N(2)-C(3)-C(5)	120.31(18)	C(40)-C(44)-C(45)	111.2(2)
C(2)-C(3)-C(5)	115.81(18)	C(40)-C(44)-C(46)	113.6(3)
C(7)-C(6)-C(11)	120.64(19)	C(45)-C(44)-C(46)	109.8(2)
C(7)-C(6)-N(1)	121.41(19)	C(48)-C(47)-C(52)	121.18(19)
C(11)-C(6)-N(1)	117.73(18)	C(48)-C(47)-N(4)	120.37(18)
C(8)-C(7)-C(6)	118.1(2)	C(52)-C(47)-N(4)	118.44(19)
C(8)-C(7)-C(12)	118.2(2)	C(49)-C(48)-C(47)	117.8(2)
C(6)-C(7)-C(12)	123.7(2)	C(49)-C(48)-C(53)	118.6(2)
C(9)-C(8)-C(7)	121.7(2)	C(47)-C(48)-C(53)	123.59(19)
C(8)-C(9)-C(10)	119.6(2)	C(50)-C(49)-C(48)	121.3(2)
C(9)-C(10)-C(11)	121.2(2)	C(51)-C(50)-C(49)	119.9(2)
C(10)-C(11)-C(6)	118.7(2)	C(50)-C(51)-C(52)	121.2(2)
C(10)-C(11)-C(15)	120.3(2)	C(51)-C(52)-C(47)	118.5(2)
C(6)-C(11)-C(15)	120.96(19)	C(51)-C(52)-C(56)	119.8(2)
C(7)-C(12)-C(14)	111.8(2)	C(47)-C(52)-C(56)	121.8(2)
C(7)-C(12)-C(13)	110.4(2)	C(48)-C(53)-C(55)	110.2(2)
C(14)-C(12)-C(13)	109.4(2)	C(48)-C(53)-C(54)	113.2(2)
C(11)-C(15)-C(17)	113.5(2)	C(55)-C(53)-C(54)	109.7(2)
C(11)-C(15)-C(16)	110.53(18)	C(57)-C(56)-C(52)	111.4(2)

C(17)-C(15)-C(16)	109.5(2)	C(57)-C(56)-C(58)	110.4(2)
C(19)-C(18)-C(23)	121.36(19)	C(52)-C(56)-C(58)	113.2(2)
C(19)-C(18)-N(2)	119.84(19)		

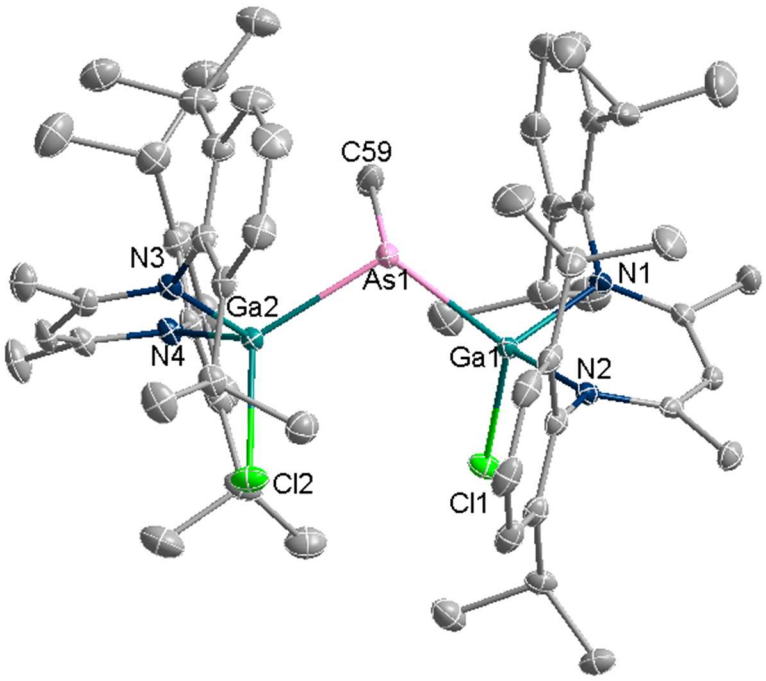

Fig. S44. Solid state structure of **9**. Hydrogen atoms are omitted for clarity. Displacement ellipsoids drawn at 50% probability levels.

Table S18: Bond lengths [Å] for **9** (jk_347m).

As(1)-C(59)	1.990(2)	C(8)-C(9)	1.381(4)	C(35)-C(36)	1.403(3)
As(1)-Ga(1)	2.4044(4)	C(9)-C(10)	1.373(4)	C(35)-C(40)	1.408(3)
As(1)-Ga(2)	2.4134(4)	C(10)-C(11)	1.401(3)	C(36)-C(37)	1.397(3)
Ga(1)-N(1)	1.9702(16)	C(11)-C(15)	1.517(3)	C(36)-C(41)	1.513(3)
Ga(1)-N(2)	1.9726(16)	C(12)-C(13)	1.531(3)	C(37)-C(38)	1.380(3)
Ga(1)-Cl(1)	2.2045(6)	C(12)-C(14)	1.534(3)	C(38)-C(39)	1.374(3)
Ga(2)-N(4)	1.9668(16)	C(15)-C(16)	1.526(4)	C(39)-C(40)	1.387(3)
Ga(2)-N(3)	1.9726(16)	C(15)-C(17)	1.531(3)	C(40)-C(44)	1.519(3)
Ga(2)-Cl(2)	2.2003(6)	C(18)-C(19)	1.404(3)	C(41)-C(42)	1.528(3)
N(1)-C(1)	1.334(3)	C(18)-C(23)	1.404(3)	C(41)-C(43)	1.532(3)
N(1)-C(6)	1.449(2)	C(19)-C(20)	1.398(3)	C(44)-C(45)	1.530(3)
N(2)-C(3)	1.325(2)	C(19)-C(24)	1.521(3)	C(44)-C(46)	1.531(3)
N(2)-C(18)	1.456(2)	C(20)-C(21)	1.382(3)	C(47)-C(48)	1.402(3)
N(3)-C(30)	1.322(3)	C(21)-C(22)	1.379(3)	C(47)-C(52)	1.412(3)
N(3)-C(35)	1.446(3)	C(22)-C(23)	1.397(3)	C(48)-C(49)	1.396(3)
N(4)-C(32)	1.346(3)	C(23)-C(27)	1.519(3)	C(48)-C(53)	1.532(3)
N(4)-C(47)	1.452(2)	C(24)-C(26)	1.526(3)	C(49)-C(50)	1.377(3)
C(1)-C(2)	1.389(3)	C(24)-C(25)	1.538(3)	C(50)-C(51)	1.376(3)

C(1)-C(4)	1.509(3)	C(27)-C(28)	1.527(3)	C(51)-C(52)	1.395(3)
C(2)-C(3)	1.407(3)	C(27)-C(29)	1.532(3)	C(52)-C(56)	1.519(3)
C(3)-C(5)	1.504(3)	C(30)-C(31)	1.404(3)	C(53)-C(54)	1.527(3)
C(6)-C(7)	1.401(3)	C(30)-C(33)	1.510(3)	C(53)-C(55)	1.534(3)
C(6)-C(11)	1.406(3)	C(31)-C(32)	1.388(3)	C(56)-C(57)	1.536(3)
C(7)-C(8)	1.396(3)	C(32)-C(34)	1.516(3)	C(56)-C(58)	1.539(3)
C(7)-C(12)	1.517(3)				

Table S19: Bond angles [°] for **9** (jk_347m).

C(59)-As(1)-Ga(1)	100.86(7)	C(18)-C(19)-C(24)	123.72(17)
C(59)-As(1)-Ga(2)	97.46(7)	C(21)-C(20)-C(19)	121.3(2)
Ga(1)-As(1)-Ga(2)	108.431(12)	C(22)-C(21)-C(20)	119.9(2)
N(1)-Ga(1)-N(2)	95.20(7)	C(21)-C(22)-C(23)	121.4(2)
N(1)-Ga(1)-Cl(1)	103.96(5)	C(22)-C(23)-C(18)	117.8(2)
N(2)-Ga(1)-Cl(1)	102.44(5)	C(22)-C(23)-C(27)	120.40(19)
N(1)-Ga(1)-As(1)	113.17(5)	C(18)-C(23)-C(27)	121.78(19)
N(2)-Ga(1)-As(1)	116.73(5)	C(19)-C(24)-C(26)	110.74(18)
Cl(1)-Ga(1)-As(1)	121.479(18)	C(19)-C(24)-C(25)	112.40(17)
N(4)-Ga(2)-N(3)	95.16(7)	C(26)-C(24)-C(25)	109.05(17)
N(4)-Ga(2)-Cl(2)	104.33(5)	C(23)-C(27)-C(28)	111.33(19)
N(3)-Ga(2)-Cl(2)	101.17(5)	C(23)-C(27)-C(29)	112.5(2)
N(4)-Ga(2)-As(1)	124.31(5)	C(28)-C(27)-C(29)	110.8(2)
N(3)-Ga(2)-As(1)	106.23(5)	N(3)-C(30)-C(31)	122.76(18)
Cl(2)-Ga(2)-As(1)	120.195(19)	N(3)-C(30)-C(33)	120.10(18)
C(1)-N(1)-C(6)	118.32(16)	C(31)-C(30)-C(33)	117.14(18)
C(1)-N(1)-Ga(1)	118.88(13)	C(32)-C(31)-C(30)	128.15(19)
C(6)-N(1)-Ga(1)	122.76(13)	N(4)-C(32)-C(31)	124.97(18)
C(3)-N(2)-C(18)	117.62(16)	N(4)-C(32)-C(34)	119.30(18)
C(3)-N(2)-Ga(1)	118.82(13)	C(31)-C(32)-C(34)	115.73(18)
C(18)-N(2)-Ga(1)	123.15(12)	C(36)-C(35)-C(40)	121.76(19)
C(30)-N(3)-C(35)	120.00(17)	C(36)-C(35)-N(3)	120.71(18)
C(30)-N(3)-Ga(2)	119.45(14)	C(40)-C(35)-N(3)	117.50(18)
C(35)-N(3)-Ga(2)	120.37(13)	C(37)-C(36)-C(35)	117.5(2)
C(32)-N(4)-C(47)	115.66(16)	C(37)-C(36)-C(41)	119.62(19)
C(32)-N(4)-Ga(2)	117.04(13)	C(35)-C(36)-C(41)	122.86(18)
C(47)-N(4)-Ga(2)	127.08(13)	C(38)-C(37)-C(36)	121.3(2)
N(1)-C(1)-C(2)	123.47(18)	C(39)-C(38)-C(37)	120.1(2)
N(1)-C(1)-C(4)	119.37(17)	C(38)-C(39)-C(40)	121.4(2)
C(2)-C(1)-C(4)	117.14(18)	C(39)-C(40)-C(35)	117.9(2)
C(1)-C(2)-C(3)	128.15(19)	C(39)-C(40)-C(44)	121.2(2)
N(2)-C(3)-C(2)	124.25(18)	C(35)-C(40)-C(44)	120.92(19)
N(2)-C(3)-C(5)	119.83(17)	C(36)-C(41)-C(42)	110.56(17)
C(2)-C(3)-C(5)	115.91(17)	C(36)-C(41)-C(43)	111.86(18)

C(7)-C(6)-C(11)	121.83(19)	C(42)-C(41)-C(43)	109.34(18)
C(7)-C(6)-N(1)	120.20(18)	C(40)-C(44)-C(45)	112.42(18)
C(11)-C(6)-N(1)	117.95(19)	C(40)-C(44)-C(46)	112.7(2)
C(8)-C(7)-C(6)	117.8(2)	C(45)-C(44)-C(46)	110.9(2)
C(8)-C(7)-C(12)	119.5(2)	C(48)-C(47)-C(52)	121.31(18)
C(6)-C(7)-C(12)	122.68(18)	C(48)-C(47)-N(4)	120.31(17)
C(9)-C(8)-C(7)	121.2(2)	C(52)-C(47)-N(4)	118.17(18)
C(10)-C(9)-C(8)	120.2(2)	C(49)-C(48)-C(47)	117.67(19)
C(9)-C(10)-C(11)	121.2(2)	C(49)-C(48)-C(53)	119.9(2)
C(10)-C(11)-C(6)	117.6(2)	C(47)-C(48)-C(53)	122.44(18)
C(10)-C(11)-C(15)	119.9(2)	C(50)-C(49)-C(48)	121.8(2)
C(6)-C(11)-C(15)	122.48(19)	C(51)-C(50)-C(49)	119.7(2)
C(7)-C(12)-C(13)	110.96(19)	C(50)-C(51)-C(52)	121.5(2)
C(7)-C(12)-C(14)	111.76(17)	C(51)-C(52)-C(47)	117.7(2)
C(13)-C(12)-C(14)	110.08(19)	C(51)-C(52)-C(56)	119.14(19)
C(11)-C(15)-C(16)	112.7(2)	C(47)-C(52)-C(56)	123.10(18)
C(11)-C(15)-C(17)	111.4(2)	C(54)-C(53)-C(48)	113.16(18)
C(16)-C(15)-C(17)	110.0(2)	C(54)-C(53)-C(55)	109.08(19)
C(19)-C(18)-C(23)	121.78(18)	C(48)-C(53)-C(55)	113.1(2)
C(19)-C(18)-N(2)	119.86(17)	C(52)-C(56)-C(57)	111.94(19)
C(23)-C(18)-N(2)	118.33(17)	C(52)-C(56)-C(58)	113.4(2)
C(20)-C(19)-C(18)	117.79(19)	C(57)-C(56)-C(58)	108.3(2)
C(20)-C(19)-C(24)	118.49(18)		

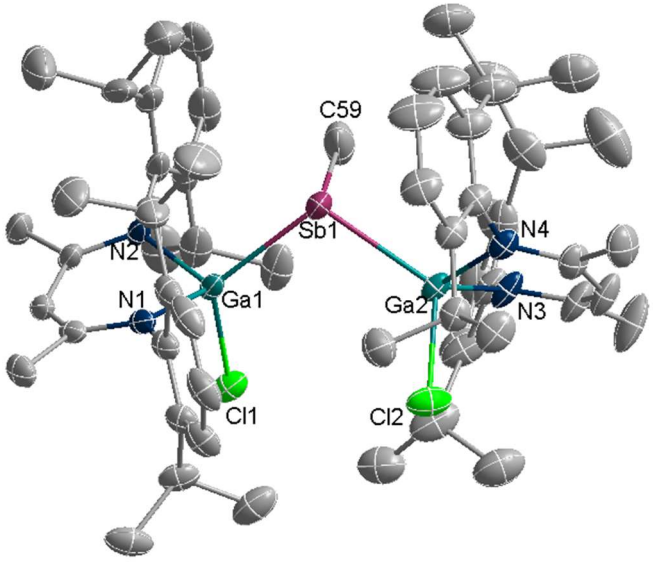

Fig. S45. Solid state structure of **10**. Hydrogen atoms are omitted for clarity. Displacement ellipsoids drawn at 50% probability levels.

Table S20: Bond lengths [Å] for **10** (jk_312m).

Sb(1)-C(59)	2.129(7)	C(8)-C(9)	1.378(7)	C(35)-C(36)	1.409(7)
Sb(1)-Ga(1)	2.5837(7)	C(9)-C(10)	1.373(8)	C(35)-C(40)	1.417(8)
Sb(1)-Ga(2)	2.6045(6)	C(10)-C(11)	1.398(8)	C(36)-C(37)	1.403(6)
Ga(1)-N(2)	1.963(3)	C(11)-C(15)	1.527(7)	C(36)-C(41)	1.523(8)
Ga(1)-N(1)	1.975(3)	C(12)-C(13)	1.517(7)	C(37)-C(38)	1.376(8)
Ga(1)-Cl(1)	2.2084(12)	C(12)-C(14)	1.542(7)	C(38)-C(39)	1.372(8)
Ga(2)-N(3)	1.960(3)	C(15)-C(17)	1.527(8)	C(39)-C(40)	1.401(6)
Ga(2)-N(4)	1.975(4)	C(15)-C(16)	1.536(8)	C(40)-C(44)	1.600(8)
Ga(2)-Cl(2)	2.2103(12)	C(18)-C(19)	1.396(8)	C(41)-C(43)	1.512(9)
N(1)-C(1)	1.331(5)	C(18)-C(23)	1.409(8)	C(41)-C(42)	1.544(9)
N(1)-C(6)	1.445(5)	C(19)-C(20)	1.410(6)	C(44)-C(46)	1.488(9)
N(2)-C(3)	1.335(5)	C(19)-C(24)	1.511(9)	C(44)-C(45)	1.513(9)
N(2)-C(18)	1.449(5)	C(20)-C(21)	1.373(12)	C(47)-C(52)	1.404(6)
N(3)-C(30)	1.341(6)	C(21)-C(22)	1.372(12)	C(47)-C(48)	1.408(7)
N(3)-C(35)	1.454(5)	C(22)-C(23)	1.399(7)	C(48)-C(49)	1.394(8)
N(4)-C(32)	1.319(6)	C(23)-C(27)	1.514(10)	C(48)-C(53)	1.526(7)
N(4)-C(47)	1.445(5)	C(24)-C(26)	1.533(7)	C(49)-C(50)	1.373(9)
C(1)-C(2)	1.408(6)	C(24)-C(25)	1.539(8)	C(50)-C(51)	1.378(8)
C(1)-C(4)	1.509(5)	C(27)-C(29)	1.529(10)	C(51)-C(52)	1.397(6)
C(2)-C(3)	1.395(6)	C(27)-C(28)	1.532(9)	C(52)-C(56)	1.513(6)
C(3)-C(5)	1.507(6)	C(30)-C(31)	1.394(7)	C(53)-C(54)	1.525(9)
C(6)-C(7)	1.405(6)	C(30)-C(33)	1.519(6)	C(53)-C(55)	1.534(8)
C(6)-C(11)	1.413(6)	C(31)-C(32)	1.405(7)	C(56)-C(58)	1.520(7)
C(7)-C(8)	1.405(6)	C(32)-C(34)	1.505(6)	C(56)-C(57)	1.537(6)
C(7)-C(12)	1.517(6)				

Table S21: Bond angles [°] for **10** (jk_312m).

C(59)-Sb(1)-Ga(1)	101.0(2)	C(20)-C(19)-C(24)	119.4(6)
C(59)-Sb(1)-Ga(2)	97.95(18)	C(21)-C(20)-C(19)	121.1(7)
Ga(1)-Sb(1)-Ga(2)	106.652(19)	C(22)-C(21)-C(20)	120.5(5)
N(2)-Ga(1)-N(1)	95.42(14)	C(21)-C(22)-C(23)	121.4(7)
N(2)-Ga(1)-Cl(1)	103.69(13)	C(22)-C(23)-C(18)	117.4(7)
N(1)-Ga(1)-Cl(1)	102.24(10)	C(22)-C(23)-C(27)	120.1(6)
N(2)-Ga(1)-Sb(1)	112.33(11)	C(18)-C(23)-C(27)	122.4(4)
N(1)-Ga(1)-Sb(1)	117.55(11)	C(19)-C(24)-C(26)	110.8(5)
Cl(1)-Ga(1)-Sb(1)	121.69(4)	C(19)-C(24)-C(25)	112.7(5)
N(3)-Ga(2)-N(4)	95.43(15)	C(26)-C(24)-C(25)	110.1(5)
N(3)-Ga(2)-Cl(2)	103.79(12)	C(23)-C(27)-C(29)	113.5(5)
N(4)-Ga(2)-Cl(2)	101.96(10)	C(23)-C(27)-C(28)	111.1(7)
N(3)-Ga(2)-Sb(1)	125.48(10)	C(29)-C(27)-C(28)	109.9(6)
N(4)-Ga(2)-Sb(1)	105.89(10)	N(3)-C(30)-C(31)	124.9(4)

Cl(2)-Ga(2)-Sb(1)	119.19(4)	N(3)-C(30)-C(33)	119.2(4)
C(1)-N(1)-C(6)	118.6(3)	C(31)-C(30)-C(33)	115.9(4)
C(1)-N(1)-Ga(1)	118.3(3)	C(30)-C(31)-C(32)	128.2(4)
C(6)-N(1)-Ga(1)	122.6(3)	N(4)-C(32)-C(31)	122.6(4)
C(3)-N(2)-C(18)	118.6(4)	N(4)-C(32)-C(34)	120.0(4)
C(3)-N(2)-Ga(1)	119.2(3)	C(31)-C(32)-C(34)	117.5(4)
C(18)-N(2)-Ga(1)	122.1(3)	C(36)-C(35)-C(40)	121.7(4)
C(30)-N(3)-C(35)	116.6(3)	C(36)-C(35)-N(3)	117.8(4)
C(30)-N(3)-Ga(2)	117.1(3)	C(40)-C(35)-N(3)	120.4(4)
C(35)-N(3)-Ga(2)	126.1(3)	C(37)-C(36)-C(35)	117.2(5)
C(32)-N(4)-C(47)	120.7(4)	C(37)-C(36)-C(41)	119.5(5)
C(32)-N(4)-Ga(2)	119.4(3)	C(35)-C(36)-C(41)	123.3(4)
C(47)-N(4)-Ga(2)	119.7(3)	C(38)-C(37)-C(36)	121.5(5)
N(1)-C(1)-C(2)	124.4(4)	C(39)-C(38)-C(37)	120.4(4)
N(1)-C(1)-C(4)	119.8(4)	C(38)-C(39)-C(40)	121.4(5)
C(2)-C(1)-C(4)	115.8(4)	C(39)-C(40)-C(35)	117.3(5)
C(3)-C(2)-C(1)	128.4(4)	C(39)-C(40)-C(44)	117.9(5)
N(2)-C(3)-C(2)	122.8(4)	C(35)-C(40)-C(44)	124.7(4)
N(2)-C(3)-C(5)	120.0(4)	C(43)-C(41)-C(36)	112.9(5)
C(2)-C(3)-C(5)	117.2(4)	C(43)-C(41)-C(42)	108.1(6)
C(7)-C(6)-C(11)	121.3(4)	C(36)-C(41)-C(42)	112.9(6)
C(7)-C(6)-N(1)	120.0(4)	C(46)-C(44)-C(45)	111.5(5)
C(11)-C(6)-N(1)	118.8(4)	C(46)-C(44)-C(40)	114.7(4)
C(6)-C(7)-C(8)	118.0(4)	C(45)-C(44)-C(40)	108.9(6)
C(6)-C(7)-C(12)	123.3(4)	C(52)-C(47)-C(48)	121.9(4)
C(8)-C(7)-C(12)	118.7(4)	C(52)-C(47)-N(4)	120.4(4)
C(9)-C(8)-C(7)	121.0(5)	C(48)-C(47)-N(4)	117.6(4)
C(10)-C(9)-C(8)	120.4(5)	C(49)-C(48)-C(47)	118.0(5)
C(9)-C(10)-C(11)	121.3(5)	C(49)-C(48)-C(53)	120.6(5)
C(10)-C(11)-C(6)	117.9(5)	C(47)-C(48)-C(53)	121.3(4)
C(10)-C(11)-C(15)	120.6(5)	C(50)-C(49)-C(48)	120.7(5)
C(6)-C(11)-C(15)	121.5(5)	C(49)-C(50)-C(51)	120.9(5)
C(7)-C(12)-C(13)	111.1(5)	C(50)-C(51)-C(52)	121.1(5)
C(7)-C(12)-C(14)	112.0(4)	C(51)-C(52)-C(47)	117.5(4)
C(13)-C(12)-C(14)	109.5(4)	C(51)-C(52)-C(56)	119.7(4)
C(17)-C(15)-C(11)	110.9(5)	C(47)-C(52)-C(56)	122.8(4)
C(17)-C(15)-C(16)	110.7(5)	C(54)-C(53)-C(48)	112.5(5)
C(11)-C(15)-C(16)	112.7(5)	C(54)-C(53)-C(55)	109.9(5)
C(19)-C(18)-C(23)	122.2(4)	C(48)-C(53)-C(55)	113.1(5)
C(19)-C(18)-N(2)	119.8(5)	C(52)-C(56)-C(58)	110.8(4)
C(23)-C(18)-N(2)	118.0(5)	C(52)-C(56)-C(57)	111.3(4)
C(18)-C(19)-C(20)	117.4(6)	C(58)-C(56)-C(57)	109.6(4)
C(18)-C(19)-C(24)	123.2(4)		

C) Computational methods

All quantum chemical calculations were employed with the ORCA quantum chemistry package (version 4.12).[10] Geometry optimizations of the anionic model systems were calculated with a PBE0 density functional, def2-TZVP[11] and atom-pairwise dispersion correction with Becke-Johnson damping Scheme (D3BJ).[12] The quantum chemical calculations of **1** and **2** were carried out without the counter cation $IPrH^+$ (**1'** and **2'**)and the ground-state geometry optimizations of **1'** and **2'** as well as **5**-**6** and **9**-**10** and LGaEGa(Cl)L (E = As **III**, Sb **IV**) were performed with a PBE0 density functional, def2-SVP basis sets for C, H and N atoms and def2-TZVP basis set for Cl, Ga, As and Sb atoms basis set and atom-pairwise dispersion correction with Becke-Johnson damping Scheme.[13] Additionally, effective core potentials (ECP) were employed for Sb atoms to accelerate geometry optimizations.[14] The RIJCOSX approximation was employed to accelerate the calculations in conjunction with the appropriate auxiliary basis sets.[15] Frequency calculations were carried out to determine the optimized structures as minima on the potential energy surface. Natural bond orbital analysis was performed using the NBO version 6.0.[16]

Table S22. Calculated bond lengths, Mayer bond order, natural charge (e) and Wiberg bond index of anionic model system $[ER_2]^-$ (E = As, Sb; R = Me, NMe_2, OMe, $SiMe_3$, $GaMe_2$) (PBE0-D3BJ/def2-TZVP).

	$[As(OMe)_2]^-$	**$[Sb(OMe)_2]^-$**
bond lengths E-O1/2	1.864	2.037
Mayer bond order E-O1/2	0.83	0.73
Wiberg bond index E-O1/2	0.63	0.55
Mulliken atomic charge (E;O)	-0.15; -0.45	-0.06; -0.54
Natural charge (E; O)	0.29; -0.80	0.37; -0.84
	$[As(NMe_2)_2]^-$	**$[Sb(NMe_2)_2]^-$**
bond lengths E-N1/2	1.910	2.098
Mayer bond order E-N1/2	0.95	0.86
Wiberg bond index E-N1/2	0.72	0.64
Mulliken atomic charge (E; N)	-0.34; -0.26	-0.26; -0.38
Natural charge (E; N)	0.16; -0.71	0.23; -0.75
	$[As(CMe_3)_2]^-$	**$[Sb(CMe_3)_2]^-$**
bond lengths E-C1/2	2.0089	2.212
Mayer bond order E-C1/2	1.08	0.88
Wiberg bond index As-C1/2	0.92	0.87
Mulliken atomic charge (E; C)	-0.42; -0.53	-0.31; -0.62
Natural charge (E; C)	-0.19; -0.93	-0.16; -0.98
	$[As(SiMe_3)_2]^-$	**$[Sb(SiMe_3)_2]^-$**
bond lengths E-Si1/2	2.292	2.519
Mayer bond order E-Si1/2	1.49	1.26
Wiberg bond index E-Si1/2	1.15	1.10
Mulliken atomic charge (E; Si)	-0.58; 0.22	-0.47; 0.23
Natural charge (E; Si)	-0.86; 1.33	-0.72; 1.25
	$[As(GaMe_2)_2]^-$	**$[Sb(GaMe_2)_2]^-$**
bond lengths E-Ga1/2	2.330	2.528
Mayer bond order E-Ga1/2	1.48	1.39
Wiberg bond index E-Ga1/2	1.24	1.26
Mulliken atomic charge (E; Ga)	-0.48; 0.25	-0.52; 0.23
Natural charge (E; Ga)	-1.06; 1.19	-0.89; 1.10

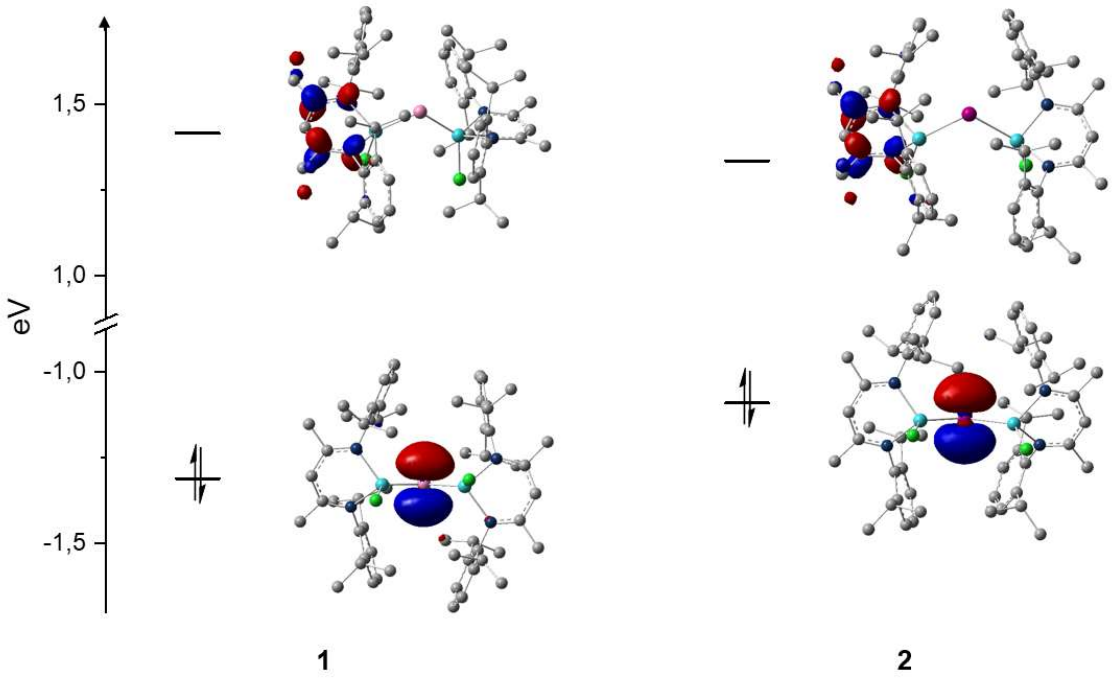

Fig. S46. Calculated HOMO's and LUMO's with their corresponding orbital energy in eV of **1'** (left) and **2'** (right) (PBE0-D3BJ/def2-TZVP).

Table S23. Mayer bond order of LGaEGa(Cl)L (E = As **III**, Sb **IV**), **1'**, **2'**, **5**, **6**, **9** and **10** (PBE0-D3BJ/def2-SVP; def2-TZVP E, Ga, Cl).

X-Y	III'	IV'	1	2	5	6	9	10
E-Ga(1)	1.65	1.62	1.28	1.22	0.97	0.95	0.95	0.94
E-Ga(2)	1.09	1.06	1.30	1.23	0.97	0.96	0.95	0.95
Ga(1)-Cl(1)	-	-	0.78	0.78	0.90	0.89	0.86	0.85
Ga(2)-Cl(1)	0.81	0.81	0.78	0.78	0.90	0.89	0.87	0.87
E-H	-	-	-	-	0.88	0.92	-	-
E-C	-	-	-	-	-	-	1.08	1.10

Table S24. Wiberg bond index of LGaEGa(Cl)L (E = As **III**, Sb **IV**), **1'**, **2'**, **5**, **6**, **9** and **10** (PBE0-D3BJ/def2-SVP; def2-TZVP E, Ga, Cl).

X-Y	III'	IV'	1	2	5	6	9	10
E-Ga(1)	1.49	1.54	1.12	1.17	0.85	0.92	0.86	0.93
E-Ga(2)	0.98	1.04	1.11	1.17	0.85	0.93	0.86	0.94
Ga(1)-Cl(1)	-	-	0.63	0.63	0.69	0.69	0.66	0.67
Ga(2)-Cl(1)	0.66	0.65	0.63	0.63	0.69	0.69	0.68	0.66
E-H	-	-	-	-	0.95	0.94	-	-
E-C	-	-	-	-	-	-	0.95	0.90

Table S25. Natural Charge of LGaEGa(Cl)L (E = As **III**, Sb **IV**), **1'**, **2'**, **5**, **6**, **9** and **10** (PBE0-D3BJ/def2-SVP; def2-TZVP E, Ga, Cl).

X	III'	IV'	1	2	5	6	9	10
E	-1.00	-0.71	-1.21	-0.93	-0.69	-0.33	-0.38	-0.03
Ga(1)	1.27	1.12	1.29	1.17	1.40	1.28	1.39	1.26
Ga(2)	1.33	1.21	1.29	1.16	1.39	1.27	1.38	1.25
Cl1	-	-	-0.57	-0.57	-0.53	-0.53	-0.55	-0.55
Cl2	-0.55	-0.56	-0.57	-0.58	-0.53	-0.53	-0.54	-0.55
H	-	-	-	-	0.04	-0.07	-	-
C	-	-	-	-	-	-	-0.94	-1.02

Table S26. Bond polarization P(X; Y) of LGaEGa(Cl)L (E = As **III**, Sb **IV**), **1'**, **2'**, **5**, **6**, **9** and **10** in % (PBE0-D3BJ/def2-SVP; def2-TZVP E, Ga, Cl).

X-Y	III'	IV'	1	2	5	6	9	10
E-Ga(1)	63; 37 84; 16	55; 45 83; 17	69; 32	59; 41	71; 29	64; 36	70; 30	62; 38
E-Ga(2)	69; 31	61; 39	69; 31	59; 41	71; 29	64; 37	69; 31	62; 38
E-H	-	-	-	-	51; 49	46; 54	-	-
E-C	-	-	-	-	-	-	39; 61	35; 65

Table S27. Cartesian coordinates (x,y,z) for the optimized geometry of **1'**.

As	5,23323	10,22928	14,48519	C	6,36326	10,57134	18,04366
Ga	5,00833	7,92103	14,4338	H	7,4441	10,64282	18,24857
Ga	4,45483	11,07741	12,47432	H	5,85845	11,32198	18,67243
Cl	3,69071	6,60802	13,15898	H	6,18511	10,83147	16,98946
Cl	3,97972	10,0473	10,52602	C	2,76804	13,43895	11,90011
N	6,66017	6,74122	14,37855	C	3,821	13,96125	11,12738
N	4,59478	7,35011	16,34753	H	3,57461	14,8316	10,52178
N	2,85414	12,33784	12,63349	C	5,18162	13,61864	11,17015
N	5,66655	12,57724	11,83647	C	1,48521	14,22839	11,89396
C	6,75005	5,64121	15,11239	H	1,58967	15,14017	11,29391
C	5,88209	5,32059	16,17174	H	1,18914	14,5017	12,91718
H	6,05856	4,35847	16,64977	H	0,66345	13,62471	11,48637
C	4,95845	6,16202	16,81172	C	6,12906	14,54569	10,45164
C	7,8757	4,67314	14,86413	H	6,78042	13,98274	9,76997
H	7,77357	4,21122	13,87292	H	6,79786	15,04861	11,16627
H	7,88682	3,88048	15,62175	H	5,57604	15,3048	9,88483
H	8,84399	5,19523	14,87186	C	1,77038	12,00294	13,50083
C	4,40395	5,68314	18,12768	C	0,63408	11,32524	13,00291
H	3,30557	5,72235	18,12879	C	-0,42348	11,05505	13,87646
H	4,73647	6,34311	18,94151	H	-1,29855	10,52261	13,49588
H	4,73386	4,66021	18,34739	C	-0,37364	11,42521	15,21288
C	7,71654	7,06635	13,47902	H	-1,20806	11,19936	15,88158
C	7,82257	6,46076	12,20718	C	0,75789	12,06625	15,6978
C	8,92559	6,78803	11,40974	H	0,81166	12,33982	16,75372
H	9,02152	6,32834	10,42298	C	1,83733	12,37161	14,8646
C	9,87849	7,70579	11,82895	C	0,51046	10,85883	11,56465
H	10,71935	7,96259	11,17911	H	1,3521	11,27858	10,99329
C	9,73343	8,33287	13,06142	C	-0,79921	11,32632	10,9253
H	10,45884	9,08845	13,36579	H	-0,9416	12,41534	11,01078
C	8,66465	8,0257	13,90686	H	-1,66911	10,84334	11,39825
C	6,77463	5,51167	11,65002	H	-0,82327	11,06045	9,85652
H	6,04902	5,30454	12,45021	C	0,62186	9,33732	11,47711
C	7,37432	4,1867	11,1704	H	0,51099	9,00294	10,43349
H	6,57988	3,51621	10,80641	H	-0,164	8,85158	12,07717
H	7,92546	3,65961	11,96477	H	1,59611	8,98136	11,83855
H	8,0767	4,33837	10,33487	C	3,00965	13,13888	15,44689
C	5,99782	6,1724	10,50954	H	3,83247	13,07084	14,71977
H	6,65734	6,36028	9,64648	C	2,65079	14,61445	15,64144
H	5,55075	7,12742	10,81973	H	2,34167	15,09621	14,70145
H	5,17653	5,51887	10,17663	H	3,50912	15,17546	16,04555
C	8,52597	8,69591	15,26076	H	1,81876	14,72276	16,35703
H	7,44531	8,84155	15,4189	C	3,49939	12,52469	16,75265
C	9,05764	7,82684	16,40136	H	3,73901	11,46301	16,60343

H	8,485	6,89536	16,51402	H	2,75291	12,61072	17,55865
H	8,98311	8,37312	17,35572	H	4,41445	13,03111	17,09781
H	10,11728	7,56122	16,24553	C	7,0805	12,5069	12,01009
C	9,13908	10,0865	15,29626	C	7,89256	11,89228	11,03462
H	10,23961	10,07164	15,22519	C	9,28231	11,95037	11,19002
H	8,88204	10,57732	16,24671	H	9,92144	11,47622	10,43986
H	8,74085	10,70452	14,47957	C	9,85777	12,59189	12,27974
C	3,77427	8,18833	17,16133	H	10,94509	12,64013	12,3847
C	2,37259	8,14906	17,0008	C	9,04337	13,14546	13,26275
C	1,57624	8,98343	17,78936	H	9,50213	13,60593	14,13971
H	0,49287	8,97102	17,64444	C	7,65106	13,09913	13,16111
C	2,1337	9,82593	18,74146	C	7,29198	11,13318	9,86807
H	1,49655	10,47444	19,34802	H	6,20223	11,2631	9,91671
C	3,51288	9,84968	18,90017	C	7,75644	11,62487	8,49818
H	3,95833	10,52608	19,63415	H	7,26509	11,03831	7,70636
C	4,35394	9,05339	18,11775	H	8,84559	11,50778	8,36704
C	1,70682	7,23278	15,99651	H	7,50591	12,68355	8,32617
H	2,49018	6,64048	15,50554	C	7,56719	9,63841	10,0176
C	0,74259	6,2556	16,66879	H	6,95522	9,06042	9,30912
H	0,29082	5,58497	15,92045	H	7,32448	9,2863	11,03041
H	-0,07672	6,78281	17,18449	H	8,62739	9,40585	9,82541
H	1,25471	5,62924	17,41635	C	6,77597	13,6461	14,27463
C	1,01037	8,03925	14,90588	H	5,87571	13,01142	14,28151
H	1,7015	8,76302	14,44999	C	6,33495	15,09157	14,03944
H	0,15507	8,60493	15,3062	H	5,71422	15,19882	13,13955
H	0,64834	7,37336	14,10847	H	7,20877	15,75803	13,94432
C	5,85055	9,16241	18,34556	H	5,73232	15,44627	14,88989
H	6,34434	8,47049	17,64757	C	7,41679	13,51249	15,65235
C	6,22742	8,7635	19,77438	H	7,78051	12,4914	15,82587
H	5,89825	7,74328	20,02576	H	6,67412	13,7432	16,43095
H	5,7665	9,44523	20,50676	H	8,25924	14,21053	15,78988
H	7,31885	8,8199	19,91596				

Table S28. Cartesian coordinates (x,y,z) for the optimized geometry of **2'**.

Sb	0,69145	4,34393	14,60856	C	0,55077	-1,63867	13,80965
Ga	1,13915	3,72109	12,20478	H	-0,52025	-1,88816	13,87848
Ga	2,09981	6,31232	15,37077	H	1,06449	-2,20573	14,60177
Cl	2,18834	4,72691	10,47436	H	0,93148	-2,0077	12,84465
Cl	2,929	8,10895	14,28183	C	3,67609	7,08643	17,74341
N	-0,59394	3,31307	11,22638	C	2,66395	8,01351	18,06501
N	1,77387	1,80126	11,98976	H	2,91013	8,72968	18,84795
N	3,61344	6,21508	16,74513	C	1,3282	8,02234	17,63407
N	0,85738	7,20327	16,70454	C	4,8946	7,10963	18,62994
C	-0,62641	2,40663	10,26271	H	5,21104	6,09103	18,89604
C	0,39908	1,46905	10,033	H	4,69464	7,67849	19,5461

H	0,27607	0,83732	9,15444	H	5,74171	7,57654	18,10865
C	1,45302	1,12125	10,89341	C	0,3895	8,9884	18,30741
C	-1,84254	2,31441	9,38054	H	0,92866	9,63502	19,01105
H	-2,7437	2,15827	9,99204	H	-0,40521	8,45292	18,84678
H	-1,74742	1,48988	8,66362	H	-0,1156	9,61239	17,55692
H	-1,99844	3,25133	8,82879	C	4,66472	5,27125	16,55502
C	2,21907	-0,13052	10,55636	C	5,90166	5,64917	15,98421
H	2,00794	-0,92046	11,29168	C	6,89269	4,67257	15,83473
H	3,30191	0,0574	10,59851	H	7,84825	4,95667	15,3867
H	1,95107	-0,50267	9,55967	C	6,68077	3,35582	16,21717
C	-1,74324	4,10085	11,51609	H	7,46837	2,60986	16,08346
C	-2,02935	5,27216	10,78105	C	5,45292	2,99057	16,75589
C	-3,15049	6,02646	11,14679	H	5,27244	1,95293	17,04011
H	-3,37776	6,94063	10,59208	C	4,43522	3,92835	16,93631
C	-3,96383	5,6483	12,20585	C	6,21144	7,05435	15,50025
H	-4,82391	6,26089	12,48865	H	5,39092	7,71616	15,81439
C	-3,66135	4,49948	12,92889	C	6,25601	7,1017	13,97386
H	-4,28478	4,22793	13,78126	H	5,28557	6,82436	13,54417
C	-2,55504	3,71056	12,60835	H	7,02178	6,41384	13,58053
C	-1,15426	5,77226	9,64381	H	6,4964	8,11861	13,62515
H	-0,38601	5,01002	9,44716	C	7,52728	7,58153	16,07895
C	-1,94691	6,00987	8,35608	H	7,57259	7,49228	17,17567
H	-2,7176	6,78522	8,49357	H	7,66719	8,64165	15,81428
H	-2,4585	5,10089	8,00074	H	8,3892	7,02921	15,67158
H	-1,276	6,35842	7,55494	C	3,13666	3,51648	17,59615
C	-0,41369	7,05154	10,0356	H	2,35948	4,19326	17,21135
H	0,16147	6,91349	10,95945	C	2,70033	2,10775	17,22523
H	-1,11863	7,88523	10,18639	H	1,68556	1,91523	17,60401
H	0,29583	7,34069	9,24518	H	3,36501	1,33579	17,64713
C	-2,21406	2,48531	13,44052	H	2,66967	1,99254	16,13399
H	-1,11457	2,46957	13,51955	C	3,21865	3,69445	19,11111
C	-2,63177	1,16553	12,78902	H	4,02995	3,07876	19,53308
H	-2,39991	0,32637	13,46434	H	2,27637	3,38059	19,58844
H	-2,09889	0,98102	11,8458	H	3,40667	4,74068	19,39349
H	-3,71585	1,14328	12,5879	C	-0,54879	7,05001	16,53727
C	-2,75115	2,57182	14,86302	C	-1,25612	7,84668	15,61546
H	-2,49828	3,54229	15,31341	C	-2,62357	7,61211	15,44162
H	-2,29523	1,78655	15,482	H	-3,17557	8,20507	14,70752
H	-3,84432	2,43001	14,90531	C	-3,27893	6,61269	16,14689
C	2,68253	1,22307	12,92576	H	-4,33979	6,4174	15,96764
C	4,04023	1,61369	12,93529	C	-2,56848	5,82625	17,04791
C	4,90818	1,01894	13,85569	H	-3,08221	5,02137	17,57676
H	5,9518	1,34063	13,8797	C	-1,20181	6,01946	17,25437
C	4,47346	0,03989	14,73794	C	-0,55422	8,8651	14,73973
H	5,17051	-0,41585	15,44588	H	0,50936	8,86292	15,01606
C	3,13573	-0,33103	14,72979	C	-0,62921	8,4453	13,27437

H	2,77958	-1,07614	15,44582	H	-1,65114	8,56206	12,87609
C	2,22116	0,25926	13,85349	H	-0,33676	7,39068	13,15959
C	4,58693	2,66589	11,99448	H	0,05061	9,05654	12,66196
H	3,80466	2,90698	11,26233	C	-1,07132	10,28971	14,92198
C	4,9125	3,95294	12,75242	H	-0,94889	10,64617	15,95688
H	5,70069	3,79093	13,50376	H	-2,13889	10,37384	14,65626
H	4,02643	4,33738	13,28098	H	-0,51506	10,97901	14,26839
H	5,25308	4,73185	12,05404	C	-0,42779	5,10215	18,18471
C	5,80193	2,16833	11,21165	H	0,58708	5,03157	17,76357
H	6,6538	1,94711	11,87447	C	-0,98934	3,68455	18,23403
H	6,13215	2,93684	10,49555	H	-1,9498	3,63172	18,77336
H	5,57376	1,25284	10,64278	H	-0,28696	3,02392	18,76526
C	0,76217	-0,1352	13,98091	H	-1,1318	3,2796	17,22192
H	0,20369	0,38656	13,19064	C	-0,29505	5,67403	19,59794
C	0,20373	0,32291	15,32971	H	0,21355	4,95282	20,25698
H	0,28208	1,41646	15,43568	H	-1,28558	5,89148	20,0311
H	0,75914	-0,13839	16,16153	H	0,29655	6,59866	19,61527
H	-0,85321	0,02845	15,43212				

Table S29. Cartesian coordinates (x,y,z) for the optimized geometry of **5**.

As	2,30322	15,99906	5,09862	H	7,66114	16,40607	6,58695
H	2,56577	15,18711	3,83353	C	5,92437	17,3264	4,71657
Ga	2,84227	14,03226	6,3852	H	4,93651	17,50148	4,26649
Ga	-0,06534	15,96539	4,67873	H	6,69554	17,58189	3,97302
Cl	1,63802	12,18758	6,37285	H	6,04322	18,02682	5,55731
Cl	-1,42458	14,61674	5,76746	C	-1,64179	16,36545	2,31649
N	3,31169	14,27392	8,2787	C	-2,3565	17,34788	3,0216
N	4,63837	13,45832	5,80059	H	-3,26624	17,70346	2,54139
N	-0,54599	15,76657	2,77948	C	-1,9605	18,0536	4,16723
N	-0,88884	17,74211	4,8943	C	-2,15443	16,00673	0,95009
C	4,3232	13,57903	8,79859	H	-1,34244	16,00395	0,20948
C	5,23178	12,8169	8,04506	H	-2,9367	16,70449	0,63048
H	5,95989	12,25073	8,6234	H	-2,57371	14,99045	0,95838
C	5,43635	12,82624	6,65731	C	-2,8015	19,23138	4,56931
C	4,54401	13,61009	10,28515	H	-2,18418	20,11183	4,79276
H	5,50602	13,15502	10,54712	H	-3,34667	18,99005	5,49437
H	3,74337	13,06129	10,80068	H	-3,52968	19,48396	3,79016
H	4,51099	14,63907	10,66888	C	0,19043	14,89425	1,92009
C	6,63247	12,0812	6,13552	C	-0,23232	13,56351	1,72139
H	7,14292	12,63683	5,33799	C	0,48455	12,77335	0,81734
H	6,29764	11,12923	5,69443	H	0,1673	11,74197	0,64665
H	7,3431	11,85791	6,93971	C	1,59908	13,26513	0,15234
C	2,5455	15,11698	9,14391	H	2,14688	12,62749	-0,54607
C	1,5356	14,57248	9,96682	C	2,03139	14,56395	0,39521
C	0,91429	15,41844	10,8901	H	2,92415	14,9351	-0,10997

H	0,13926	15,01224	11,54419	C	1,34007	15,40212	1,27353
C	1,2489	16,76351	10,98078	C	-1,40416	12,95565	2,46881
H	0,75153	17,40447	11,71283	H	-1,91387	13,76214	3,01656
C	2,19479	17,29877	10,11523	C	-2,41784	12,29533	1,53381
H	2,42815	18,36397	10,16349	H	-1,99624	11,40195	1,04673
C	2,85948	16,49223	9,18728	H	-2,75899	12,9712	0,73478
C	1,08281	13,12837	9,86268	H	-3,30172	11,96853	2,10237
H	1,78212	12,59976	9,19811	C	-0,91288	11,95236	3,5116
C	1,07073	12,41054	11,21229	H	-0,2103	12,4085	4,22111
H	0,82761	11,3461	11,0729	H	-0,40818	11,09944	3,03046
H	0,31194	12,83155	11,8905	H	-1,76055	11,5634	4,0959
H	2,04048	12,46998	11,72958	C	1,79713	16,83272	1,49353
C	-0,29865	13,05214	9,20982	H	1,53777	17,09115	2,53257
H	-0,60189	12,00212	9,07946	C	1,05069	17,81399	0,58833
H	-0,30958	13,52349	8,21794	H	1,19218	17,55419	-0,47306
H	-1,05545	13,5525	9,83558	H	1,42859	18,8375	0,73808
C	3,92665	17,0845	8,28842	H	-0,02809	17,83031	0,7962
H	4,01488	16,42045	7,41607	C	3,30471	17,00652	1,3533
C	5,29287	17,1106	8,97468	H	3,63707	16,89468	0,30892
H	6,04716	17,56547	8,31318	H	3,85615	16,27893	1,96514
H	5,64341	16,09959	9,22893	H	3,60053	18,01495	1,67849
H	5,25655	17,70282	9,90324	C	-0,41407	18,66482	5,8762
C	3,54071	18,45923	7,75798	C	-0,91069	18,63127	7,19472
H	2,54005	18,44509	7,30531	C	-0,42524	19,57162	8,11015
H	4,25362	18,78242	6,98492	H	-0,79447	19,55091	9,13813
H	3,54161	19,22813	8,54686	C	0,50411	20,53249	7,734
C	5,05687	13,66337	4,45084	H	0,86169	21,26527	8,46119
C	4,78037	12,70448	3,45723	C	0,98649	20,55173	6,4298
C	5,19559	12,96757	2,14708	H	1,72471	21,30275	6,14079
H	4,97859	12,23707	1,36418	C	0,55411	19,61723	5,48575
C	5,87847	14,13275	1,8275	C	-1,94071	17,61572	7,64386
H	6,19925	14,3168	0,79932	H	-2,25805	17,04465	6,75988
C	6,14629	15,07018	2,82026	C	-3,17887	18,27208	8,25535
H	6,67909	15,98725	2,56209	H	-3,63341	19,01653	7,58393
C	5,73658	14,86338	4,13916	H	-2,93949	18,78662	9,19937
C	4,04629	11,41496	3,75922	H	-3,93956	17,50929	8,48211
H	3,86588	11,37577	4,84314	C	-1,32336	16,62486	8,6259
C	4,85929	10,18174	3,3641	H	-0,40964	16,16625	8,2229
H	4,99657	10,12203	2,27278	H	-2,02859	15,81218	8,85467
H	4,33868	9,26465	3,68072	H	-1,05381	17,12234	9,56879
H	5,86036	10,17971	3,82058	C	1,08972	19,66541	4,06756
C	2,68365	11,40075	3,07418	H	0,86297	18,69201	3,60834
H	2,79111	11,35848	1,97972	C	0,37788	20,7353	3,23786
H	2,10214	12,30078	3,31373	H	0,77868	20,7617	2,21278
H	2,09622	10,52841	3,39805	H	0,51667	21,73443	3,6814
C	6,0566	15,88957	5,21044	H	-0,70241	20,54591	3,16581

H	5,31917	15,74953	6,0154	C	2,60318	19,84955	4,02013
C	7,44185	15,6514	5,81558	H	2,95948	19,7914	2,98043
H	8,22336	15,7179	5,04126	H	3,11215	19,06639	4,60018
H	7,52042	14,66351	6,28957	H	2,91531	20,83019	4,41215

Table S30. Cartesian coordinates (x,y,z) for the optimized geometry of **6**.

Sb	8,70709	15,96944	5,04287	H	11,61017	17,312	10,13538
H	8,94851	15,00265	3,65438	C	9,9628	18,22397	7,99156
Ga	9,19546	13,84391	6,45382	H	8,96629	18,26952	7,52979
Ga	6,14947	15,87981	4,63822	H	10,69546	18,5508	7,23894
Cl	7,9782	12,00619	6,36214	H	9,98574	18,95888	8,81179
Cl	4,81639	14,53447	5,77	C	4,48988	16,2704	2,33587
N	11,00113	13,26779	5,89675	C	3,80163	17,25594	3,06345
N	9,62969	14,01262	8,36346	H	2,87246	17,60606	2,61725
N	5,60587	15,67516	2,75551	C	4,23576	17,96666	4,19358
N	5,33421	17,65857	4,87767	C	3,92303	15,90071	0,99374
C	11,7454	12,55524	6,7356	H	4,7009	15,91945	0,21733
C	11,4968	12,4878	8,1156	H	3,11061	16,57961	0,71079
H	12,18053	11,86192	8,68706	H	3,53149	14,87361	1,0179
C	10,59945	13,2559	8,87816	C	3,3973	19,13254	4,63336
C	12,91362	11,77535	6,20261	H	2,71703	19,45683	3,83732
H	13,40971	12,29841	5,37479	H	4,01529	19,97985	4,95807
H	12,54312	10,81797	5,80155	H	2,79316	18,82877	5,50255
H	13,6432	11,5559	6,99124	C	6,30745	14,79876	1,86996
C	10,78004	13,219	10,36982	C	7,42184	15,30525	1,16317
H	11,71078	12,70695	10,63945	C	8,06615	14,4674	0,24966
H	9,93891	12,6936	10,84361	H	8,92652	14,8421	-0,30675
H	10,7872	14,23416	10,79064	C	7,6282	13,16513	0,03655
C	11,44628	13,57015	4,57516	H	8,13768	12,52751	-0,69021
C	11,10803	12,73423	3,49396	C	6,55839	12,66997	0,76899
C	11,48915	13,12661	2,2062	H	6,23991	11,63499	0,6246
H	11,21959	12,49482	1,3567	C	5,88691	13,46273	1,70536
C	12,19399	14,30243	1,98992	C	7,89484	16,73292	1,36245
H	12,479	14,59348	0,97601	H	7,67899	16,98881	2,41251
C	12,53084	15,11397	3,06867	C	7,11406	17,71961	0,4928
H	13,08231	16,0386	2,89047	H	7,20546	17,4587	-0,57374
C	12,16314	14,77314	4,37204	H	7,50473	18,74073	0,62451
C	10,33888	11,44336	3,67911	H	6,04595	17,7421	0,7496
H	10,13993	11,32006	4,75333	C	9,39647	16,90234	1,15706
C	11,14076	10,232	3,20135	H	9,67975	16,80298	0,09712
H	11,31599	10,26958	2,11437	H	9,97235	16,16638	1,73668
H	10,59169	9,30182	3,41548	H	9,70954	17,90634	1,48052
H	12,124	10,16828	3,69104	C	4,77134	12,84886	2,52883
C	8,98806	11,51038	2,97369	H	4,28501	13,65413	3,09888
H	9,1091	11,55447	1,88084	C	3,70939	12,16463	1,66827
H	8,417	12,39825	3,27787	H	4,11353	11,2794	1,15241

H	8,3808	10,62554	3,21604	H	3,29753	12,83245	0,89605
C	12,554	15,66345	5,53784	H	2,87544	11,82098	2,29882
H	11,80912	15,49309	6,33076	C	5,34668	11,8661	3,54864
C	13,91955	15,27005	6,10655	H	5,83598	11,01717	3,04469
H	14,70388	15,36884	5,33878	H	4,54702	11,46876	4,19182
H	13,93302	14,23346	6,4684	H	6,08558	12,34284	4,20597
H	14,18737	15,92109	6,95341	C	5,8616	18,55687	5,85394
C	12,53102	17,14911	5,19274	C	6,85696	19,47573	5,44677
H	11,56211	17,44643	4,76401	C	7,37388	20,36013	6,39605
H	13,32306	17,41783	4,4764	H	8,13758	21,08059	6,09743
H	12,70197	17,7504	6,09849	C	6,94043	20,33114	7,71762
C	8,86057	14,84625	9,23486	H	7,36273	21,02598	8,44733
C	7,81011	14,30239	10,00625	C	5,98059	19,40728	8,10723
C	7,17273	15,13602	10,92999	H	5,65168	19,37678	9,14862
H	6,36585	14,72869	11,54349	C	5,41968	18,5102	7,1911
C	7,53015	16,47068	11,07037	C	7,32501	19,53765	4,00548
H	7,02031	17,10157	11,80263	H	7,14682	18,54105	3,57335
C	8,51522	17,00932	10,25192	C	6,49761	20,53561	3,19305
H	8,76674	18,06803	10,33673	H	6,85382	20,57785	2,15226
C	9,19451	16,21521	9,32393	H	6,57651	21,54809	3,62049
C	7,32257	12,8757	9,83822	H	5,43396	20,2622	3,16641
H	8,03268	12,34704	9,18534	C	8,8148	19,83582	3,87244
C	7,23327	12,11567	11,16135	H	9,12464	19,74382	2,82046
H	6,96047	11,06537	10,97687	H	9,41723	19,13326	4,46745
H	6,46251	12,5402	11,82367	H	9,06231	20,86088	4,19004
H	8,18353	12,12463	11,71692	C	4,37526	17,52175	7,66577
C	5,96833	12,86481	9,12642	H	4,01432	16,96461	6,78963
H	5,64015	11,83028	8,94361	C	3,17764	18,21443	8,31679
H	6,01307	13,37191	8,15339	H	2,72684	18,97293	7,65899
H	5,20025	13,36571	9,73772	H	3,46338	18,7212	9,25214
C	10,29369	16,81475	8,46975	H	2,40125	17,4756	8,56829
H	10,37853	16,18443	7,57163	C	4,99449	16,50778	8,62351
C	11,64702	16,76497	9,17962	H	5,87531	16,01876	8,18446
H	12,42886	17,22665	8,55617	H	4,27098	15,71841	8,87605
H	11,95876	15,73141	9,38993	H	5,31594	16,99123	9,5575

Table S31. Cartesian coordinates (x,y,z) for the optimized geometry of **9**.

As	7,81128	3,40181	5,20603	H	6,33419	0,00169	3,82827
Ga	10,17437	2,9719	4,91998	H	6,36584	-0,0161	2,05631
Ga	7,26864	5,40744	3,98195	C	4,72162	6,58261	3,30429
Cl	11,69864	4,56978	4,86433	C	5,3225	7,83801	3,52208
Cl	8,1415	5,58878	1,96061	H	4,74842	8,697	3,17851
N	10,83969	1,84327	6,39767	C	6,45287	8,13359	4,29055
N	10,7655	1,77358	3,47924	C	3,32666	6,60276	2,74474
N	5,31812	5,4309	3,57443	H	3,37773	6,61142	1,64509
N	7,2911	7,20884	4,78211	H	2,79513	7,50843	3,06244

C	11,89022	1,05011	6,20591	H	2,75214	5,71582	3,0396
C	12,36775	0,69296	4,93804	C	6,70855	9,5893	4,58259
H	13,236	0,03569	4,92998	H	7,66818	9,89433	4,14486
C	11,78041	0,93611	3,68467	H	6,78902	9,78351	5,65916
C	12,62374	0,49239	7,39307	H	5,91092	10,21492	4,16556
H	13,14684	-0,43664	7,13629	C	4,62066	4,1922	3,44687
H	11,95571	0,3154	8,24541	C	4,43276	3,59368	2,18436
H	13,37725	1,22806	7,71776	C	3,7731	2,36015	2,13078
C	12,35098	0,1731	2,52184	H	3,62239	1,88111	1,16039
H	11,55575	-0,24517	1,88973	C	3,32069	1,72964	3,2809
H	13,00375	-0,63534	2,87067	H	2,81714	0,76257	3,21517
H	12,9395	0,84461	1,88026	C	3,51364	2,33289	4,51951
C	10,21466	1,92695	7,67585	H	3,15566	1,83283	5,4208
C	10,62361	2,88649	8,62369	C	4,15767	3,56623	4,62645
C	9,92814	2,95461	9,836	C	4,92585	4,21799	0,89309
H	10,22906	3,69631	10,57994	H	5,36063	5,19929	1,13259
C	8,86382	2,10466	10,10807	C	6,04511	3,38058	0,28193
H	8,33314	2,1778	11,06014	H	5,68472	2,3775	0,00178
C	8,47478	1,15939	9,16329	H	6,88199	3,26208	0,98021
H	7,63766	0,4932	9,38216	H	6,44242	3,8641	-0,62389
C	9,13412	1,05252	7,93648	C	3,79451	4,42032	-0,11659
C	11,78057	3,83576	8,37886	H	4,16301	4,96639	-0,99884
H	12,2083	3,59514	7,3948	H	2,94999	4,98432	0,30613
C	11,31313	5,28951	8,31575	H	3,39765	3,45582	-0,47137
H	12,16535	5,95887	8,1244	C	4,30816	4,24957	5,97035
H	10,83932	5,60655	9,2589	H	5,23903	4,83641	5,92061
H	10,59318	5,44982	7,50255	C	3,17235	5,24522	6,21458
C	12,87905	3,66439	9,42987	H	3,14778	6,0353	5,45136
H	13,21937	2,62063	9,50348	H	3,29123	5,73448	7,19412
H	12,53358	3,96846	10,43092	H	2,1967	4,73387	6,20552
H	13,74942	4,28985	9,1779	C	4,43714	3,27934	7,13747
C	8,72199	-0,00744	6,93136	H	3,4982	2,73483	7,32377
H	9,09896	0,317	5,95007	H	4,6794	3,82769	8,06052
C	7,21059	-0,16447	6,80518	H	5,23431	2,54287	6,95886
H	6,73444	0,79133	6,54013	C	8,19671	7,63396	5,8049
H	6,75155	-0,5417	7,73253	C	9,53255	7,9766	5,49111
H	6,97307	-0,88871	6,0113	C	10,31936	8,51201	6,51781
C	9,38759	-1,34779	7,25304	H	11,34951	8,79634	6,30656
H	9,11637	-2,10657	6,50248	C	9,8265	8,68458	7,8053
H	9,06632	-1,71601	8,24096	H	10,46624	9,10959	8,58234
H	10,4837	-1,26777	7,26667	C	8,53206	8,28569	8,10795
C	10,19086	1,8595	2,17193	H	8,16249	8,38774	9,12987
C	10,81064	2,6265	1,16216	C	7,69694	7,74886	7,1242
C	10,24492	2,60777	-0,11678	C	10,13703	7,74867	4,1101
H	10,70741	3,19979	-0,90989	H	9,90057	6,70494	3,84089
C	9,11723	1,84976	-0,39993	C	11,65711	7,87475	4,09872

H	8,70248	1,8389	-1,41045	H	12,0438	7,52846	3,1298
C	8,50255	1,12479	0,61418	H	12,13228	7,26542	4,87797
H	7,60095	0,54979	0,39516	H	11,97584	8,92265	4,22483
C	9,00772	1,13275	1,91553	C	9,57156	8,63647	2,99935
C	12,04862	3,47048	1,40493	H	10,11399	8,43314	2,06407
H	12,41162	3,25584	2,42103	H	9,70775	9,70427	3,23811
C	13,17336	3,15863	0,4149	H	8,51372	8,44065	2,79126
H	12,9076	3,46817	-0,60806	C	6,29464	7,29388	7,50468
H	13,41997	2,08673	0,37469	H	6,00176	6,53068	6,76789
H	14,08692	3,70665	0,69283	C	6,2525	6,65127	8,89251
C	11,71083	4,96091	1,35767	H	5,29077	6,13529	9,03892
H	11,36881	5,25708	0,35298	H	6,33268	7,40561	9,69092
H	12,60044	5,55981	1,60646	H	7,05884	5,91876	9,03706
H	10,91567	5,2155	2,0687	C	5,24339	8,40618	7,43693
C	8,31186	0,34079	3,00627	H	5,04274	8,73432	6,40973
H	8,62908	0,77118	3,96807	H	5,55779	9,28218	8,0271
C	8,75033	-1,12366	3,00322	H	4,28902	8,04903	7,85432
H	8,48595	-1,61181	2,05125	C	7,85047	4,20558	7,01462
H	8,25579	-1,67873	3,81634	H	8,5719	5,02189	7,12014
H	9,83671	-1,22475	3,14331	H	8,06306	3,42528	7,75164
C	6,7936	0,47162	2,94643	H	6,84763	4,59311	7,21401
H	6,48008	1,52474	2,94039				

Table S32. Cartesian coordinates (x,y,z) for the optimized geometry of **10**.

Sb	7,93711	4,40713	4,4874	H	8,54362	8,80353	3,74758
Ga	5,39263	4,8233	4,87936	H	8,68686	8,52349	2,00625
Ga	8,50802	2,22192	5,77591	C	9,34053	-0,49234	5,47673
Cl	3,8423	3,24908	4,97202	C	10,45146	-0,19173	6,27211
Cl	7,6199	1,98165	7,79134	H	11,01705	-1,04807	6,6364
N	4,86161	6,00872	6,35957	C	11,04873	1,06614	6,49167
N	4,70053	5,99472	3,44866	C	9,08686	-1,94785	5,18401
N	8,51877	0,43195	4,95837	H	9,02889	-2,14388	4,10606
N	10,4545	2,21433	6,20423	H	8,1163	-2,24659	5,60265
C	3,83428	6,84099	6,20324	H	9,87271	-2,57587	5,61945
C	3,20561	7,10183	4,9728	C	12,43518	1,05216	7,07204
H	2,3299	7,74751	5,02021	H	12,98623	0,16456	6,73635
C	3,64703	6,77216	3,6842	H	12,36794	1,00939	8,17002
C	3,2938	7,57297	7,39989	H	12,99911	1,95623	6,81073
H	4,10506	7,99028	8,01211	C	7,65627	0,02732	3,89273
H	2,73894	6,87904	8,04791	C	8,21513	-0,08479	2,59666
H	2,61751	8,3785	7,09133	C	7,41749	-0,59782	1,57028
C	2,86874	7,33451	2,52825	H	7,833	-0,69982	0,56625
H	3,50565	7,52513	1,6553	C	6,09973	-0,96562	1,80589
H	2,34505	8,25582	2,81077	H	5,48922	-1,37093	0,99557
H	2,11217	6,59349	2,22283	C	5,54711	-0,78389	3,06755
C	5,48223	5,89674	7,64325	H	4,49972	-1,03858	3,22535

C	4,90795	5,09467	8,65276	C	6,29681	-0,2764	4,13554
C	5,5205	5,08108	9,91015	C	9,6351	0,36893	2,28561
H	5,09195	4,46243	10,70194	H	9,87682	1,15288	3,02006
C	6,65504	5,83602	10,17178	C	10,68886	-0,73296	2,43654
H	7,11001	5,81812	11,16469	H	10,4096	-1,6256	1,85372
C	7,22851	6,59188	9,1559	H	10,84044	-1,03276	3,48044
H	8,138	7,16072	9,35644	H	11,66085	-0,38016	2,05814
C	6,6711	6,62335	7,87639	C	9,75502	0,98002	0,88828
C	3,67606	4,23798	8,4272	H	9,73505	0,20686	0,10404
H	3,27607	4,47459	7,43035	H	10,71746	1,50604	0,7901
C	4,04471	2,75379	8,41922	H	8,94952	1,69684	0,67732
H	3,16522	2,14431	8,16031	C	5,63105	-0,0339	5,48487
H	4,40673	2,43087	9,40851	H	5,88909	0,99953	5,7769
H	4,83601	2,53915	7,69029	C	6,11375	-0,95232	6,60947
C	2,57838	4,50204	9,45996	H	5,95679	-2,01154	6,34655
H	2,3082	5,56687	9,52923	H	5,53516	-0,74458	7,52176
H	2,88408	4,1786	10,46737	H	7,16647	-0,79247	6,86821
H	1,6692	3,93843	9,19966	C	4,1091	-0,10678	5,41872
C	7,32045	7,44929	6,78197	H	3,69543	0,52173	4,61983
H	7,01084	7,00573	5,82306	H	3,68549	0,25204	6,36738
C	8,84404	7,391	6,82637	H	3,76198	-1,14289	5,272
H	9,21044	6,35559	6,87262	C	11,1261	3,46427	6,3512
H	9,25575	7,93513	7,69095	C	11,58518	4,11802	5,18398
H	9,26985	7,84691	5,92055	C	12,18783	5,37008	5,3137
C	6,81922	8,89338	6,78796	H	12,54187	5,89171	4,42361
H	7,29397	9,4718	5,97942	C	12,34172	5,96789	6,56026
H	7,05917	9,38787	7,7431	H	12,81218	6,95024	6,64212
H	5,73077	8,94931	6,64146	C	11,89045	5,31306	7,69691
C	5,29667	5,93621	2,1556	H	12,00854	5,7878	8,67394
C	4,86957	4,9904	1,20202	C	11,27307	4,05899	7,62155
C	5,52236	4,95749	-0,0353	C	11,46584	3,45221	3,82705
H	5,20379	4,22915	-0,78493	H	10,51591	2,89177	3,83351
C	6,5713	5,8216	-0,32181	C	12,58478	2,43052	3,61264
H	7,07114	5,77469	-1,29197	H	12,49936	1,9659	2,61803
C	6,98764	6,74464	0,63318	H	12,55308	1,62375	4,35755
H	7,81366	7,42059	0,403	H	13,57137	2,91598	3,67775
C	6,36445	6,82294	1,88098	C	11,407	4,43659	2,66522
C	3,74543	4,01143	1,47602	H	11,18127	3,9032	1,7295
H	3,33537	4,24234	2,46967	H	12,36811	4,9532	2,51624
C	2,61426	4,14476	0,45581	H	10,62768	5,19793	2,82145
H	2,24072	5,17787	0,39063	C	10,77636	3,41134	8,89978
H	1,77061	3,49472	0,73492	H	10,36089	2,42571	8,64518
H	2,93875	3,84793	-0,55436	C	11,90081	3,2174	9,91887
C	4,26563	2,57504	1,53538	H	12,75783	2,67035	9,49917
H	4,71439	2,26532	0,57754	H	11,53254	2,65788	10,79277
H	3,44592	1,87854	1,76805	H	12,27929	4,18496	10,28537

H	5,02413	2,45381	2,32027	C	9,63651	4,22336	9,50814
C	6,78757	7,87647	2,88875	H	9,97986	5,22444	9,81544
H	6,47069	7,51774	3,87989	H	9,22987	3,71688	10,39701
C	6,05855	9,19701	2,62883	H	8,80981	4,34688	8,79815
H	6,32008	9,59588	1,63524	C	7,82272	3,49871	2,52537
H	6,33794	9,95012	3,38206	H	7,41237	4,22712	1,81798
H	4,96696	9,07764	2,66434	H	7,22286	2,58306	2,5131
C	8,29544	8,09548	2,94236	H	8,85112	3,26378	2,23025
H	8,82799	7,15441	3,14622				

Table S33. Cartesian coordinates (x,y,z) for the optimized geometry of **III**.

As	7,38934	3,65609	4,20298	H	4,81583	-1,89994	3,22763
Ga	8,19579	2,12829	5,81941	H	6,77542	-0,73993	6,20233
Ga	5,65114	4,87603	4,98362	C	5,69215	-2,54005	5,795
Cl	7,23451	1,54449	7,73787	C	4,75611	-0,20294	5,81088
N	10,10727	2,28273	6,37476	H	7,45452	6,97912	9,78122
N	8,46376	0,38765	4,88364	C	5,95464	5,54449	10,34282
N	4,64103	5,78622	6,35889	H	6,53413	7,19218	6,13476
N	4,71342	5,76303	3,49835	C	8,43873	6,98149	7,05811
C	10,84084	1,19054	6,56564	C	6,75879	8,82251	7,48033
C	10,65375	3,56521	6,67873	H	4,39582	4,09412	10,63066
C	9,40614	-0,45668	5,30081	H	2,77044	4,50034	7,3196
C	7,60404	-0,04068	3,82488	C	3,79224	2,64622	7,49924
C	3,62483	6,63025	6,12648	C	2,24871	3,66507	9,20463
C	5,11371	5,66254	7,70354	H	7,61851	6,78125	0,09096
C	3,66404	6,56271	3,615	C	6,54184	4,94137	-0,19464
C	5,29026	5,51153	2,21638	H	5,91749	7,80655	3,28848
C	10,45184	-0,09738	6,16256	C	6,52656	8,92442	1,5776
C	12,18188	1,29545	7,23998	C	8,02067	7,55906	3,08262
C	11,15181	4,34912	5,61381	H	5,34717	3,1522	-0,22699
C	10,70122	4,03338	8,00823	H	3,66597	3,68027	3,09575
C	9,39336	-1,87848	4,80977	C	2,62312	3,42751	1,24695
C	7,95696	0,2792	2,49514	C	4,43529	1,93173	2,1522
C	6,45275	-0,80576	4,10007	H	12,20724	7,04588	7,42339
C	3,12718	6,93741	4,85829	H	10,85628	4,4106	2,14712
C	2,9835	7,32618	7,29462	H	11,79782	5,58787	3,0793
C	6,2153	6,44116	8,10363	H	10,03201	5,44495	3,33149
C	4,44413	4,80006	8,59532	H	12,46319	2,63537	2,9019
C	3,0462	7,15415	2,3826	H	12,55698	2,16468	4,61044
C	6,24653	6,41453	1,7114	H	13,33956	3,66628	4,06151
C	4,95188	4,32643	1,53392	H	8,12179	4,03532	8,90363
H	11,1352	-0,90008	6,43444	H	9,09513	4,91061	10,11109
H	12,81481	0,43802	6,98177	H	8,40721	3,31168	10,49449
H	12,04522	1,30103	8,33191	H	12,09693	2,62404	9,94828
H	12,70123	2,2258	6,97651	H	10,73957	2,39754	11,0802
C	11,69903	5,60049	5,90503	H	11,39558	4,01836	10,78726

C	11,16922	3,81074	4,19787	H	5,48734	-1,44879	0,886
C	11,27343	5,28702	8,24888	H	8,77274	1,60524	0,07523
C	10,1362	3,24476	9,17352	H	9,7522	2,80818	0,92778
H	9,36167	-1,92039	3,71189	H	8,00428	2,72607	1,23622
H	8,48826	-2,39257	5,16372	H	10,24609	-0,39241	1,0794
H	10,27372	-2,42546	5,16676	H	10,69737	-0,29099	2,79966
C	7,18562	-0,24581	1,45562	H	11,26442	0,94775	1,66224
C	9,16229	1,14431	2,18352	H	4,83424	-2,90856	5,21039
C	5,70625	-1,29963	3,02548	H	5,44955	-2,68392	6,85927
C	5,98116	-1,06656	5,51554	H	6,55295	-3,18371	5,55694
H	2,27136	7,60966	4,82827	H	4,97155	0,85605	5,61337
H	2,20752	8,02014	6,95223	H	4,45804	-0,29601	6,86611
H	3,73613	7,88327	7,87116	H	3,90202	-0,50054	5,18023
H	2,53593	6,60486	7,99344	H	6,2835	5,49931	11,38347
C	6,60917	6,37526	9,44326	H	8,57908	5,93426	6,75077
C	6,95994	7,34592	7,13944	H	8,94721	7,12072	8,02377
C	4,89176	4,75355	9,91671	H	8,95246	7,61471	6,31902
C	3,28394	3,94471	8,12053	H	7,28119	9,46078	6,75076
H	3,68907	7,95923	1,99391	H	7,15872	9,061	8,47875
H	2,05787	7,57573	2,60166	H	5,69403	9,10148	7,47232
H	2,96245	6,40805	1,58175	H	4,50637	2,83453	6,68256
C	6,86458	6,10305	0,49786	H	2,95853	2,05346	7,09197
C	6,62965	7,67967	2,45879	H	4,32844	2,03531	8,23988
C	5,59055	4,06663	0,31881	H	1,37512	3,15694	8,76911
C	3,91151	3,36133	2,07083	H	1,89999	4,59161	9,6872
H	12,08755	6,21714	5,09259	H	2,64506	3,00365	9,99038
C	11,76937	6,06722	7,21318	H	7,04025	4,71396	-1,13972
H	10,32835	3,10619	4,11828	H	7,26893	8,90842	0,7644
C	10,95442	4,88115	3,13696	H	6,71182	9,83263	2,17201
C	12,45372	3,02352	3,93231	H	5,53221	9,01769	1,11413
H	11,32298	5,66013	9,27496	H	8,79651	7,47272	2,30528
H	9,84186	2,25197	8,80301	H	8,09165	6,66677	3,72367
C	8,86936	3,91455	9,6976	H	8,2509	8,44792	3,69189
C	11,1507	3,05979	10,30266	H	2,19867	4,44224	1,21827
H	7,45666	-0,01836	0,42274	H	1,8591	2,75514	1,66761
C	6,07655	-1,04382	1,71225	H	2,80639	3,11633	0,2061
H	9,35778	1,74519	3,0838	H	4,6384	1,51537	1,15413
C	8,90069	2,12008	1,04083	H	3,69361	1,2761	2,63373
C	10,41035	0,30182	1,91943	H	5,36581	1,88481	2,7367

Table S34. Cartesian coordinates (x,y,z) for the optimized geometry of **IV**.

Sb	4,20185	5,06923	9,78872	C	3,20612	11,53362	9,69624
Ga	2,01586	6,39224	9,68637	H	4,18313	12,04134	9,66
Ga	4,78057	4,3849	7,5133	H	2,73261	11,80084	10,65327
Cl	1,26937	7,52335	7,91486	H	2,58875	11,95055	8,88549
N	0,31425	5,68565	10,44989	C	5,2871	3,40396	4,82989

N	2,23125	7,79095	11,09444	C	6,56637	2,9768	5,1952
N	4,43	4,03244	5,64973	H	7,1454	2,48707	4,41418
N	6,63355	3,7124	7,47464	C	7,21841	3,1472	6,43057
C	-0,47903	6,47512	11,16892	C	4,86805	3,15142	3,40837
C	-0,1126	7,74803	11,64071	H	4,50692	4,07623	2,93655
H	-0,89629	8,29906	12,15852	H	4,03122	2,43847	3,36987
C	1,16473	8,32524	11,68214	H	5,70311	2,74778	2,82426
C	-1,86417	6,01158	11,53087	C	8,62624	2,64159	6,54902
H	-2,55093	6,21016	10,69412	H	9,08476	2,51897	5,56046
H	-2,23618	6,55125	12,41011	H	8,62684	1,66202	7,05236
H	-1,89613	4,93125	11,72371	H	9,24173	3,31217	7,16307
C	1,31592	9,6078	12,45213	C	3,18351	4,47725	5,1069
H	1,52291	10,43206	11,75287	C	2,13647	3,5496	4,93837
H	2,16912	9,565	13,14272	C	0,97782	3,98364	4,2911
H	0,40467	9,8436	13,01433	H	0,1558	3,28403	4,13159
C	-0,1059	4,3609	10,12028	C	0,84865	5,29973	3,86329
C	0,41837	3,28363	10,87115	H	-0,06665	5,62299	3,36238
C	0,00189	1,98711	10,5609	C	1,86371	6,21695	4,10808
H	0,39972	1,14668	11,13204	H	1,72582	7,25607	3,8092
C	-0,9142	1,74955	9,54196	C	3,0517	5,83138	4,73658
H	-1,23372	0,72891	9,31775	C	2,23808	2,14303	5,4998
C	-1,41075	2,81537	8,80451	H	3,3034	1,86437	5,52339
H	-2,11927	2,62523	7,99414	C	1,73296	2,12199	6,94478
C	-1,01441	4,1319	9,06552	H	0,67371	2,41314	6,99651
C	1,37337	3,53046	12,0216	H	2,28911	2,81907	7,5923
H	1,96789	4,41508	11,74519	H	1,82695	1,11475	7,38012
C	2,35968	2,39098	12,24151	C	1,51589	1,09794	4,65531
H	1,87222	1,4886	12,64404	H	1,82394	1,13627	3,59858
H	3,12976	2,69529	12,96569	H	0,42317	1,22815	4,69094
H	2,8712	2,12769	11,30495	H	1,73042	0,0882	5,0369
C	0,62277	3,86473	13,31116	C	4,15343	6,8391	5,02791
H	0,00927	4,77059	13,20743	H	4,49188	6,63827	6,06405
H	1,3325	4,03994	14,13491	C	3,66241	8,28049	5,00481
H	-0,04126	3,03593	13,6052	H	3,39695	8,59975	3,9842
C	-1,54495	5,24249	8,18001	H	4,4609	8,95	5,35513
H	-1,19697	6,20202	8,58947	H	2,79082	8,41791	5,65927
C	-0,95642	5,11967	6,77664	C	5,3675	6,69674	4,10666
H	-1,29692	4,19348	6,28555	H	5,0783	6,86077	3,05604
H	0,14054	5,11216	6,79972	H	5,85231	5,71462	4,17919
H	-1,26321	5,96965	6,14834	H	6,12561	7,45226	4,36636
C	-3,07233	5,26631	8,11686	C	7,32938	3,90424	8,70701
H	-3,41719	6,14169	7,54504	C	7,40966	2,8508	9,63859
H	-3,53246	5,3084	9,11535	C	8,00453	3,1131	10,8764
H	-3,4702	4,3712	7,61292	H	8,06795	2,31358	11,61845
C	3,53234	8,29005	11,4044	C	8,50102	4,37345	11,18383
C	4,27063	7,65433	12,42962	H	8,95663	4,55863	12,15933

C	5,54394	8,14071	12,73367	C	8,40814	5,40261	10,2532
H	6,12708	7,66003	13,52101	H	8,78292	6,39493	10,50958
C	6,08584	9,22107	12,04605	C	7,81388	5,19675	9,00707
H	7,0837	9,58805	12,29832	C	6,8395	1,47182	9,36089
C	5,35801	9,82187	11,0284	H	6,52627	1,44318	8,30609
H	5,7932	10,65869	10,4765	C	7,8799	0,37004	9,56629
C	4,07958	9,37021	10,68482	H	7,47067	-0,60818	9,27018
C	3,698	6,48008	13,2019	H	8,17992	0,29168	10,62285
H	2,97616	5,98463	12,53345	H	8,79364	0,55121	8,97954
C	4,75295	5,44678	13,58572	C	5,59104	1,21323	10,20601
H	5,3486	5,13789	12,71367	H	4,83321	1,9924	10,03489
H	4,26813	4,55004	14,00048	H	5,83229	1,21849	11,28096
H	5,43956	5,82715	14,35845	H	5,15158	0,23287	9,96244
C	2,922	6,93765	14,43871	C	7,70959	6,33559	8,00966
H	2,05698	7,56221	14,17658	H	6,88847	6,08643	7,31663
H	3,57137	7,51779	15,11405	C	8,98421	6,45537	7,17197
H	2,54353	6,06783	14,99816	H	9,20326	5,52751	6,62321
C	3,34935	10,0217	9,52908	H	9,85272	6,67885	7,81225
H	2,34076	9,58677	9,47759	H	8,88972	7,26725	6,43366
C	4,04384	9,68642	8,21146	C	7,341	7,66251	8,66279
H	3,46926	10,08684	7,36376	H	7,15126	8,42368	7,89049
H	4,13164	8,59841	8,07738	H	8,14625	8,04777	9,30769
H	5,057	10,11937	8,17683	H	6,43125	7,55881	9,27282

Table S35. Cartesian coordinates (x,y,z) for the optimized geometry of $[AsMe_2]^-$.

As	-5,51506	5,23683	-0,43843	C	-4,19048	3,81246	0,06397
C	-7,10284	4,05297	-0,10201	H	-3,18063	4,22529	-0,0389
H	-7,10954	3,16384	-0,74722	H	-4,25644	2,9282	-0,58461
H	-8,01346	4,62436	-0,31438	H	-4,30827	3,47551	1,10296
H	-7,15976	3,71098	0,94045				

Table S36. Cartesian coordinates (x,y,z) for the optimized geometry of $[SbMe_2]^-$.

Sb	-5,50473	5,37586	-0,46537	C	-4,06716	3,78103	0,06645
C	-7,23029	4,04344	-0,09126	H	-3,0531	4,17878	-0,03423
H	-7,20639	3,17271	-0,75209	H	-4,16825	2,92073	-0,60072
H	-8,15021	4,60154	-0,28859	H	-4,20781	3,45198	1,0996
H	-7,24853	3,70438	0,94804				

Table S37. Cartesian coordinates (x,y,z) for the optimized geometry of $[As(NMe_2)_2]^-$.

As	0,28331	0,95981	1,876	H	-1,1191	-1,31988	0,73539
N	-1,16525	0,7466	0,64899	C	2,13626	2,02109	-0,08852
N	1,83623	0,9107	0,76443	H	1,80516	2,94496	0,3891
C	-1,52049	1,82294	-0,22619	H	1,64339	1,96239	-1,08168
H	-1,33212	2,77435	0,27442	H	3,22344	2,09663	-0,28863
H	-2,59069	1,77865	-0,50971	C	2,2559	-0,32866	0,18271

H	-0,94926	1,82691	-1,17826	H	3,34744	-0,33825	-0,0074
C	-1,39874	-0,52763	0,03866	H	1,77127	-0,54702	-0,79211
H	-0,81979	-0,68374	-0,89574	H	2,01346	-1,14821	0,86157
H	-2,46469	-0,65735	-0,23454				

Table S38. Cartesian coordinates (x,y,z) for the optimized geometry of $[Sb(NMe_2)_2]^-$.

Sb	0,32995	1,10742	2,02844	H	-1,24664	-1,26214	0,90145
N	-1,25995	0,80504	0,69379	C	2,23841	1,98903	-0,21262
N	1,96847	0,9434	0,72879	H	1,95829	2,95549	0,21083
C	-1,59276	1,8207	-0,26014	H	1,68876	1,8735	-1,17004
H	-1,40127	2,80874	0,16288	H	3,31361	2,02505	-0,47828
H	-2,66119	1,76816	-0,5494	C	2,32876	-0,33614	0,19468
H	-1,01447	1,74546	-1,20463	H	3,40693	-0,37895	-0,05769
C	-1,50596	-0,50218	0,16184	H	1,78431	-0,59442	-0,73757
H	-0,9245	-0,72132	-0,75801	H	2,11706	-1,11961	0,92487
H	-2,57209	-0,63293	-0,11069				

Table S39. Cartesian coordinates (x,y,z) for the optimized geometry of $[As(OMe)_2]^-$.

As	0,41465	-0,28936	-1,56487	H	-2,40316	0,83289	0,56913
O	-1,06156	-0,348	-0,42678	C	2,26463	0,29011	0,45625
O	1,76487	-0,72111	-0,35325	H	2,20914	1,27496	-0,03619
C	-1,31984	0,76279	0,36513	H	3,31932	0,08039	0,70883
H	-0,99095	1,69719	-0,11889	H	1,71322	0,37414	1,40964
H	-0,80842	0,70824	1,34264	H	-2,40316	0,83289	0,56913

Table S40. Cartesian coordinates (x,y,z) for the optimized geometry of $[Sb(OMe)_2]^-$.

Sb	0,43119	-0,10931	-1,7954	H	-2,4574	0,81911	0,64067
O	-1,16117	-0,24445	-0,5318	C	2,32281	0,24583	0,47285
O	1,87226	-0,66708	-0,46776	H	2,30026	1,28514	0,10265
C	-1,38207	0,76174	0,39562	H	3,36294	0,00973	0,75937
H	-1,06327	1,75365	0,03199	H	1,7216	0,22478	1,39919
H	-0,84525	0,5831	1,34426				

Table S41. Cartesian coordinates (x,y,z) for the optimized geometry of $[As(SiMe_3)_2]^-$.

As	4,73125	9,42346	4,18903	H	2,73441	10,16726	1,07793
Si	5,0184	9,56749	1,91939	C	1,6111	8,11985	2,96121
Si	3,0506	7,86456	4,17727	H	0,8194	7,37933	3,1277
C	5,11727	7,94479	0,93301	H	1,94721	8,0255	1,92496
H	4,16535	7,40736	0,9589	H	1,18566	9,11945	3,08138
H	5,87975	7,28794	1,35943	C	2,24354	7,85049	5,89676
H	5,36753	8,13722	-0,11733	H	1,4759	7,07209	5,97589
C	6,66921	10,44577	1,58512	H	1,78115	8,81852	6,10727
H	7,50051	9,85489	1,97883	H	2,99811	7,66916	6,66758
H	6,68839	11,41865	2,08469	C	3,59131	6,06325	3,89262
H	6,83137	10,60559	0,51291	H	4,34882	5,78494	4,63047

C	3,73	10,60799	0,98382	H	4,04096	5,94563	2,9035
H	3,97163	10,69496	-0,08299	H	2,74844	5,36562	3,97581
H	3,68431	11,61217	1,41421				

Table S42. Cartesian coordinates (x,y,z) for the optimized geometry of $[Sb(SiMe_3)_2]^-$.

Sb	4,82801	9,53542	4,36021	H	2,77755	10,20416	1,09043
Si	5,09218	9,63351	1,85686	C	1,60193	8,12209	3,00393
Si	2,9889	7,81614	4,26494	H	0,80548	7,37483	3,10612
C	5,16051	7,97025	0,94234	H	1,98285	8,071	1,98049
H	4,2102	7,43628	1,02558	H	1,17078	9,11586	3,14728
H	5,93699	7,33262	1,37191	C	2,1262	7,74978	5,95488
H	5,37445	8,11589	-0,12358	H	1,3549	6,97111	5,97954
C	6,73175	10,49907	1,44786	H	1,65778	8,71091	6,18173
H	7,57473	9,9235	1,83871	H	2,8516	7,53914	6,74571
H	6,76508	11,4907	1,9078	C	3,55613	6,03295	3,93694
H	6,86169	10,61744	0,36576	H	4,28311	5,72952	4,69486
C	3,76846	10,63805	0,9361	H	4,04846	5,95686	2,96438
H	3,96678	10,67775	-0,14247	H	2,71404	5,3296	3,95651
H	3,74103	11,65952	1,32453				

Table S43. Cartesian coordinates (x,y,z) for the optimized geometry of $[As(GaMe_2)_2]^-$.

As	-0,68676	2,64078	-1,36344	H	-4,3385	2,93928	-0,71538
Ga	1,22977	1,50847	-0,67553	H	-4,5299	2,27105	0,91892
C	1,51286	0,08137	0,71579	H	-4,80432	1,24203	-0,48482
C	3,00823	1,95798	-1,51904	H	0,84075	0,19496	1,56786
Ga	-2,24054	1,4882	-0,06492	H	2,54808	0,09556	1,07187
C	-4,1785	2,05384	-0,09634	H	1,32438	-0,90629	0,28089
C	-2,04686	-0,09902	1,15807	H	2,91079	2,70195	-2,31265
H	-1,28175	-0,79647	0,8134	H	3,46974	1,0577	-1,94085
H	-3,00036	-0,62943	1,24854	H	3,69918	2,34733	-0,76233
H	-1,7562	0,2354	2,15998				

Table S44. Cartesian coordinates (x,y,z) for the optimized geometry of $[Sb(GaMe_2)_2]^-$.

Sb	-0,70439	2,79821	-1,46401	H	-4,50205	2,92039	-0,63988
Ga	1,34425	1,52675	-0,70436	H	-4,63722	2,23001	0,99069
C	1,53997	0,07613	0,67417	H	-4,91911	1,20925	-0,41857
C	3,15048	1,94031	-1,50077	H	0,82654	0,18653	1,4919
Ga	-2,358	1,50986	-0,05073	H	2,55596	0,06882	1,08193
C	-4,30581	2,03277	-0,03518	H	1,35979	-0,90014	0,21098
C	-2,08609	-0,08658	1,14135	H	3,09367	2,6933	-2,28935
H	-1,30775	-0,75155	0,76433	H	3,59805	1,03131	-1,91851
H	-3,01889	-0,64955	1,24829	H	3,83	2,30474	-0,72183
H	-1,77928	0,24413	2,13955				

[1] N. J. Hardman, B. E. Eichler, P. P. Power, *Chem. Commun*. **2000**, 1991-1992.

[2] N. Kuhn, T. Kratz, *Synthesis* **1993**, 561-562.

[3] P. Jutzi, C. Müller, A. Stammler, H.-G. Stammler, *Organomet.* **2000**, *19*, 1442-1444.

[4] I. Krossing, A. Reisinger, *Eur. J. Inorg. Chem.* **2005**, 1979-1989.

[5] a) C. Ganesamoorthy, C. Helling, C. Wölper, W. Frank, E. Bill, G. E. Cutsail III, S. Schulz, *Nat. Commun*. **2018**, *9*, 87–95; b) J. Krüger, C. Ganesamoorthy, L. John, C. Wölper, S. Schulz, *Chem. Eur. J*. **2018**, *24*, 9157–9164; c) J. Schoening, L. John, C. Wölper, S. Schulz, *Dalton Transaction*, **2019**, *48*, 17729–17734.

[6] G. M. Sheldrick, *Acta Crystallogr.* 1990, **A46**, 467.

[7] G. M. Sheldrick, SHELXL-2017, Program for the Refinement of Crystal Structures University of Göttingen, Göttingen (Germany) **2017**. (see also: Sheldrick, G. M. Acta Crystallogr. 2008, **A64**, 112).

[8] shelXle, *A Qt GUI for SHELXL*, C. B. Hübschle, G. M. Sheldrick, B. Dittrich, *J. Appl. Cryst.* **2011**, *44*, 1281-1284.

[9] PLATON/SQUEEZE, P. van der Sluis, A. L. Spek, *Acta Crystallogr.* **1990**, *A46,* 194-201.

[10] F. Neese, The ORCA program system. *Wiley Interdisciplinary Reviews: Computational Molecular Science* **2012**, *2*, 73.

[11] a) F. Weigend, R. Ahlrichs, *Phys. Chem. Chem. Phys.* **2005**, *7*, 3297-3305.

[12] a) S. Grimme, S. Ehrlich, L. Goerigk, *J. Comput. Chem.* **2011**, *32*, 1456–1465; b) S. Grimme, J. Antony, S. Ehrlich; H. Krieg, *J. Chem. Phys*. **2010**, *132*, 154104.

[13] F. Weigend, R. Ahlrichs, *Phys. Chem. Chem. Phys.* **2005**, *7*, 3297-3305.

[14] B. Metz, H. Stoll, M. Dolg, *J. Chem. Phys*. **2000**, *113*, 2563-2569.

[15] S. Kossmann, F. Neese, *Chem. Phys. Lett*. **2009**, *481*, 240-243.

[16] NBO 6.0: E. D. Glendening, J. K. Badenhoop, A. E. Reed, J. E. Carpenter, J. A. Bohmann, C. M. Morales, C. R. Landis, F. Weinhold (Theoretical Chemistry Institute, University of Wisconsin, Madison, WI, 2013); http://nbo6.chem.wisc.edu/]