



## Supporting Information

for

### Radical reactivity of antiaromatic Ni(II) norcorroles with azo radical initiators

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**Experimental procedures, compound characterization data including NMR and MS spectra, additional crystal data and details from DFT calculations**

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## 1. Instrumentation and materials

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$^1\text{H}$  NMR (500 MHz) and  $^{13}\text{C}$  NMR (126 MHz) spectra were recorded on a Bruker AVANCE III HD spectrometer. Chemical shifts were reported as the delta scale in ppm relative to  $\text{CHCl}_3$  ( $\delta = 7.26$  ppm) for  $^1\text{H}$  NMR and  $\text{CDCl}_3$  ( $\delta = 77.16$  ppm) for  $^{13}\text{C}$  NMR.

UV–vis–NIR absorption spectra were recorded on a Shimadzu UV-2550 or JASCO V 670 spectrometer.

High-resolution and electron spray ionization time-of-flight (ESI-TOF) mass spectra were taken on a Bruker micrOTOF instrument using a positive ionization mode.

X-ray data were obtained using a Bruker D8 QUEST X-ray diffractometer with an  $\text{I}\mu\text{S}$  microfocus X-ray source and a PHOTON II detector.

Cyclic voltammograms were obtained under the following conditions: solvent:  $\text{CH}_2\text{Cl}_2$ , electrolyte: 0.1 M  $\text{Bu}_4\text{NPF}_6$ , working electrode: glassy carbon, counter electrode: Pt, reference electrode:  $\text{Ag}/\text{AgNO}_3$ , scan rate:  $50 \text{ mV s}^{-1}$ .

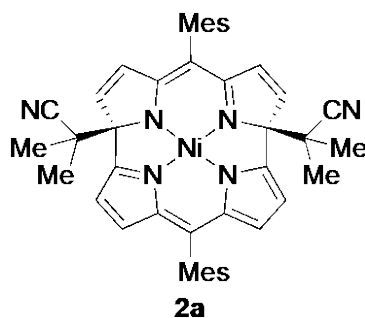
Dry toluene was purchased from KANTO CHEMICAL CO., INC. as a dehydrated grade. AIBN and V-40 were purchased from Wako Pure Chemical Industries, Ltd. Ni(II) mesitylnorcorrole **1** was prepared according to the literature.<sup>1</sup>

Unless otherwise noted, materials obtained from commercial suppliers were used without further purification.

## 2. Experimental procedures and compound data

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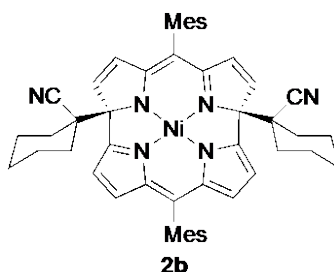
### Synthesis of dialkylated macrocycle **2a**



To a Schlenk flask was added compound **1** (23.0 mg, 40  $\mu\text{mol}$ ), AIBN (13.2 mg, 80  $\mu\text{mol}$ ) and dry toluene (4 mL) under  $\text{N}_2$  atmosphere. The reaction mixture was stirred at reflux for 1 h. After removing the solvent in vacuo, the mixture was purified by PTLC (eluent:  $\text{CH}_2\text{Cl}_2/\text{hexane} = 1:2$ ) and compound **2a** (26.2 mg, 37  $\mu\text{mol}$ , 92%) was obtained as a maroon solid.

$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ , 298 K):  $\delta = 7.19$  (d,  $J = 5.4$  Hz, 2H), 6.93 (s, 1H), 6.92 (s, 1H), 6.91 (s, 1H), 6.87 (s, 1H), 6.49 (d,  $J = 4.2$  Hz, 2H), 6.46 (d,  $J = 4.2$  Hz, 2H), 6.09 (d,  $J = 5.4$  Hz, 2H), 2.34 (s, 3H), 2.31 (s, 3H), 2.19 (s, 3H), 2.18 (s, 3H), 2.14 (s, 3H), 1.86 (s, 3H), 1.60 (s, 6H), 1.42 (s, 6H) ppm;  $^{13}\text{C}$  NMR (126 MHz,  $\text{CDCl}_3$ , 298 K):  $\delta = 174.3, 153.4, 145.8, 145.6, 140.7, 139.0, 137.9, 136.9, 136.4, 136.3, 133.5, 133.3, 132.7, 131.9, 128.3, 128.2, 128.0, 127.9, 127.7, 123.7, 115.2, 98.0, 92.4, 40.1, 24.4, 23.0, 21.3, 21.2, 21.2, 21.2, 20.3, 20.0$ , ppm; HRMS (ESI):  $[\text{M}+\text{Na}]^+$  Calcd for  $(\text{C}_{44}\text{H}_{42}\text{N}_6\text{Ni})\text{Na}^+$ : 735.2717; Found: 735.2721

## Synthesis of dialkylated macrocycle **2b**



To a Schlenk flask was added compound **1** (23.0 mg, 40  $\mu\text{mol}$ ), V-40 (19.5 mg, 80  $\mu\text{mol}$ ) and dry toluene (4 mL) under  $\text{N}_2$  atmosphere. The reaction mixture was stirred at reflux for 1 h. After removing the solvent in vacuo, the mixture was purified by PTLC (eluent:  $\text{CH}_2\text{Cl}_2/\text{hexane} = 1:1$ ) and compound **2b** (27.4 mg, 35  $\mu\text{mol}$ , 87%) was obtained as a maroon solid.

$^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ , 298 K):  $\delta = 7.18$  (d,  $J = 5.4$  Hz, 2H), 6.93–6.90 (m, 3H), 6.86 (s, 1H), 6.49 (d,  $J = 4.3$  Hz, 2H), 6.44 (d,  $J = 4.3$  Hz, 2H), 6.06 (d,  $J = 5.4$  Hz, 2H), 2.33 (s, 3H), 2.30 (s, 3H), 2.24–2.15 (m, 13H), 1.94–1.86 (m, 2H), 1.85–1.78 (m, 2H), 1.82 (s, 3H), 1.78–1.69 (m, 4H), 1.69–1.58 (m, 4H), 1.32–1.22 (m, 4H) ppm;  $^{13}\text{C}$  NMR (126 MHz,  $\text{CDCl}_3$ , 298 K):  $\delta = 174.7$ , 153.6, 145.8, 145.3, 140.7, 139.1, 137.8, 136.8, 136.5, 136.4, 133.7, 133.4, 132.6, 132.0, 128.2, 128.2, 128.0, 127.9, 127.7, 122.1, 115.3, 98.2, 92.9, 47.4, 32.4, 30.6, 25.0, 23.7, 23.4, 21.5, 21.3, 21.2, 21.1, 20.5, 19.9 ppm; HRMS (ESI):  $[\text{M}+\text{Na}]^+$  Calcd for  $(\text{C}_{50}\text{H}_{50}\text{N}_6\text{Ni})\text{Na}^+$ : 815.3343; Found: 815.3348

### 3. NMR spectra

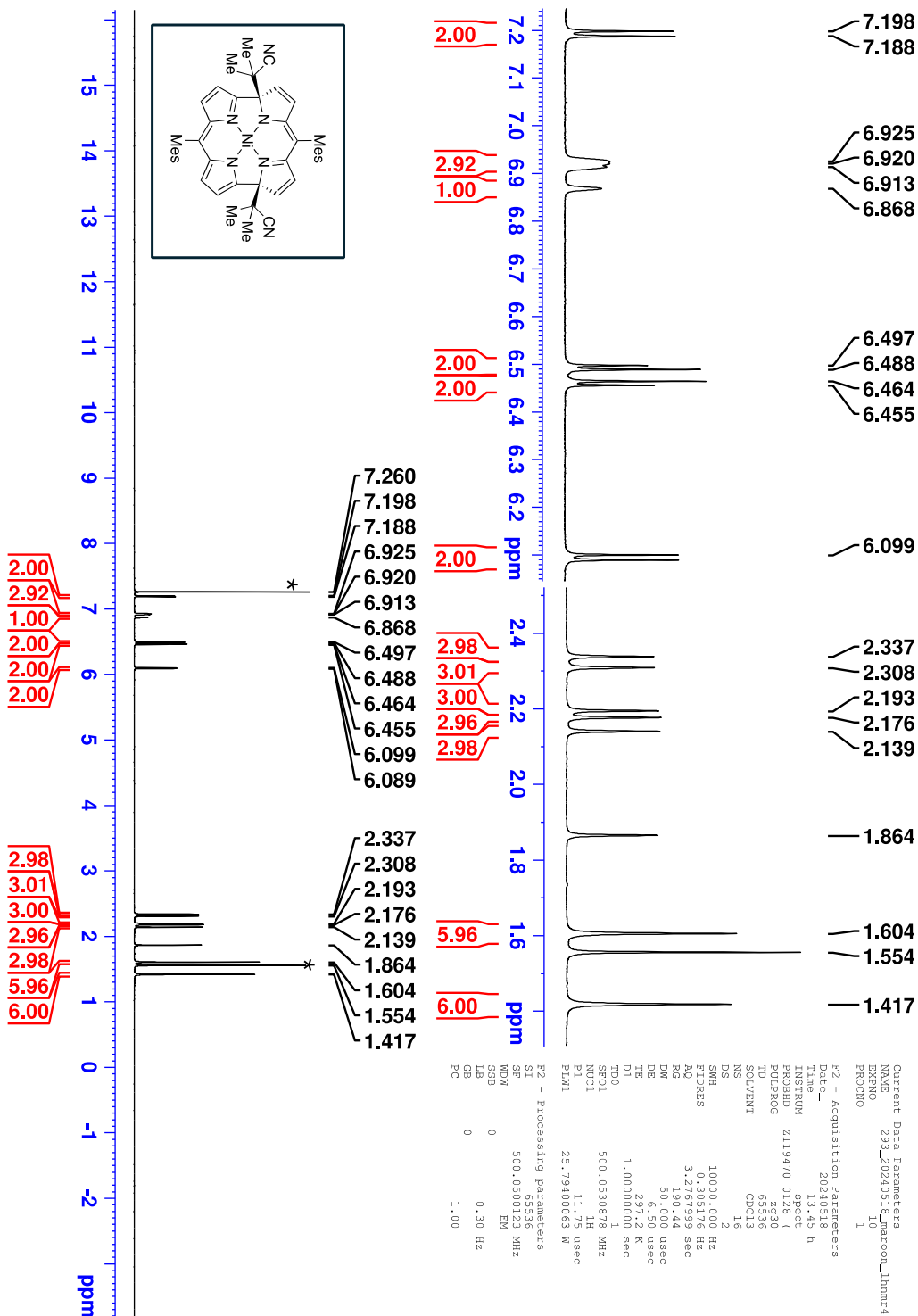


Figure S1. <sup>1</sup>H NMR spectrum of **2a** in CDCl<sub>3</sub> at 25 °C.

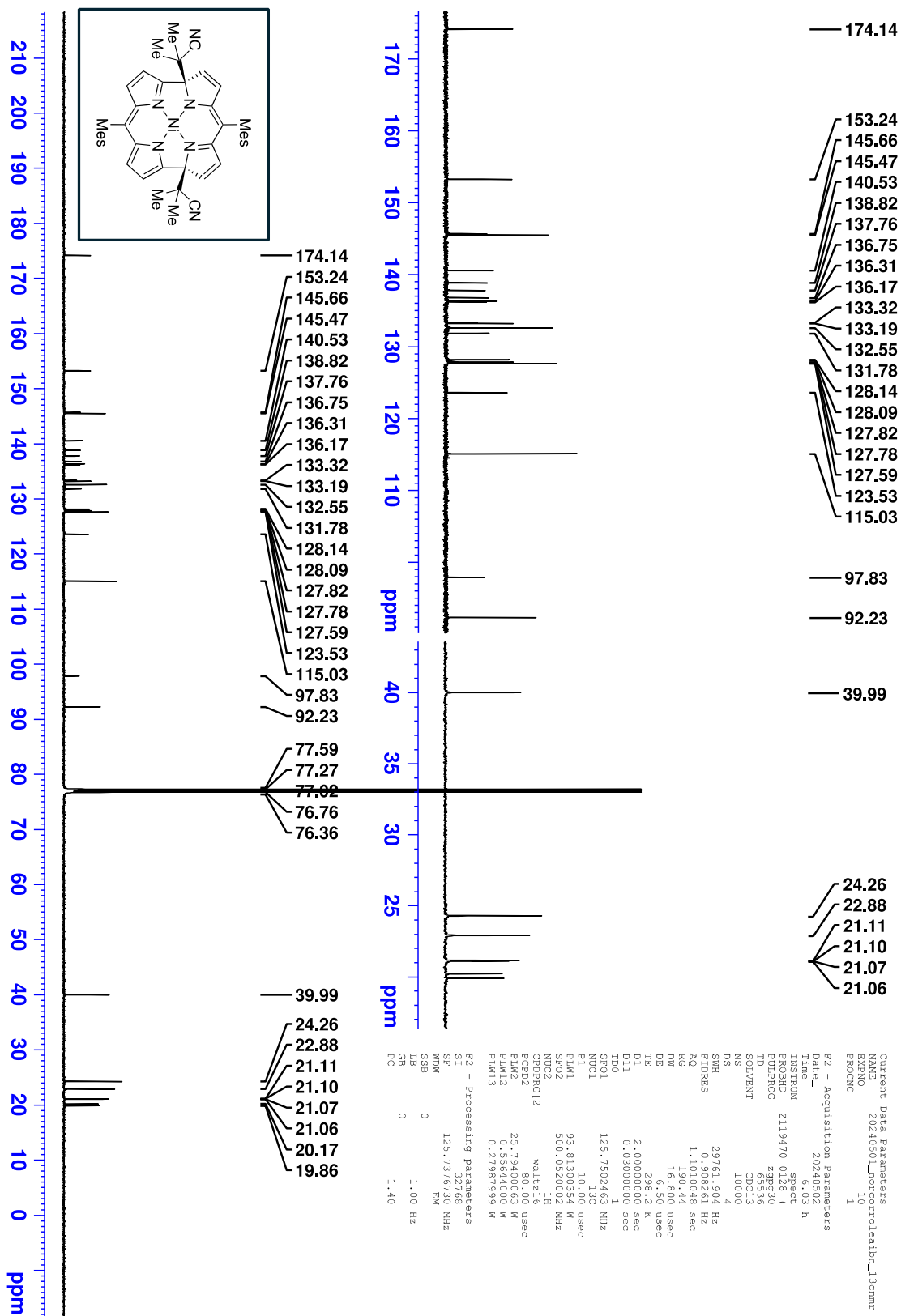


Figure S2.  $^{13}\text{C}$  NMR spectrum of **2a** in  $\text{CDCl}_3$  at  $25^\circ\text{C}$ .

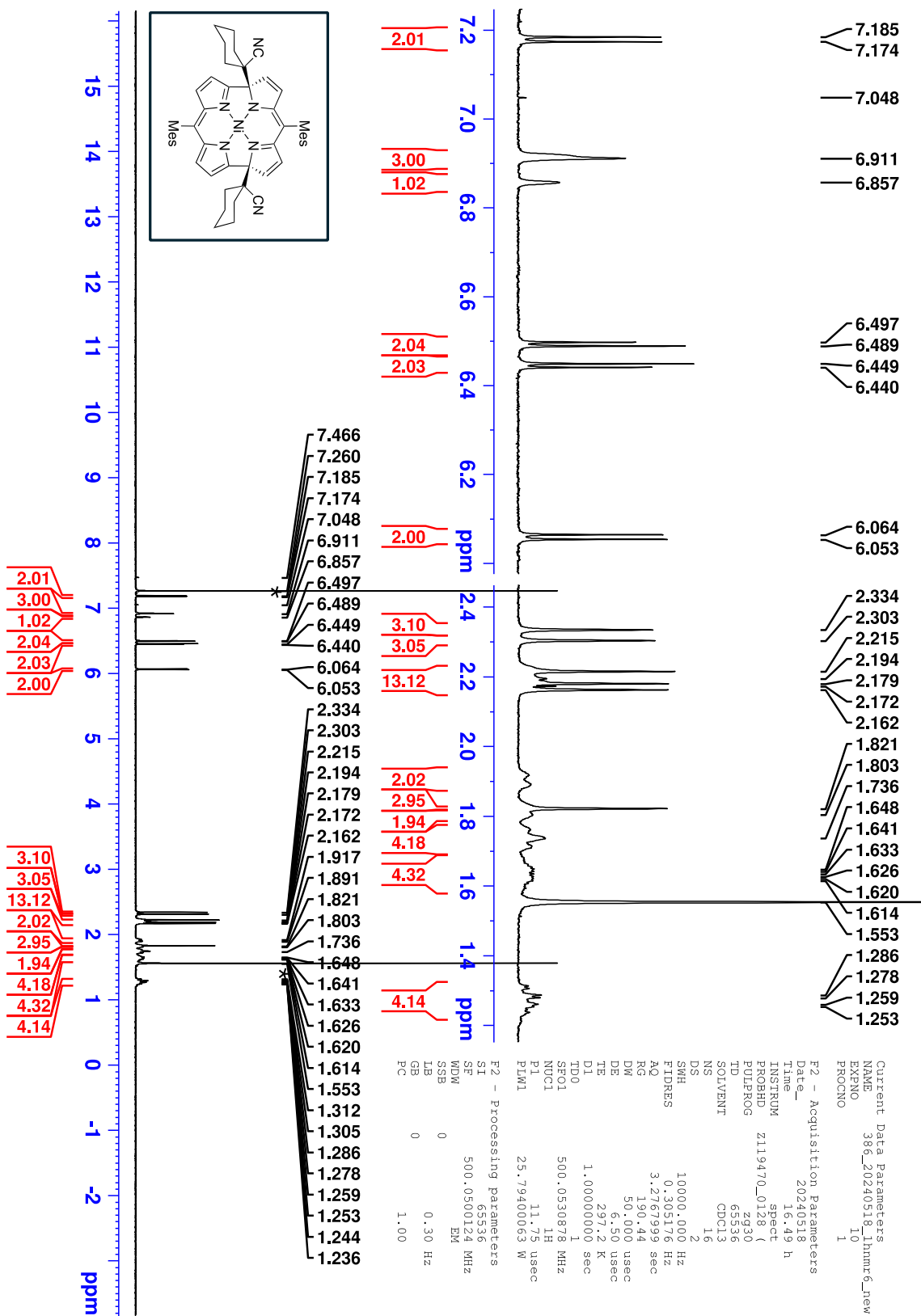


Figure S3.  $^1\text{H}$  NMR spectrum of **2b** in  $\text{CDCl}_3$  at  $25^\circ\text{C}$ .



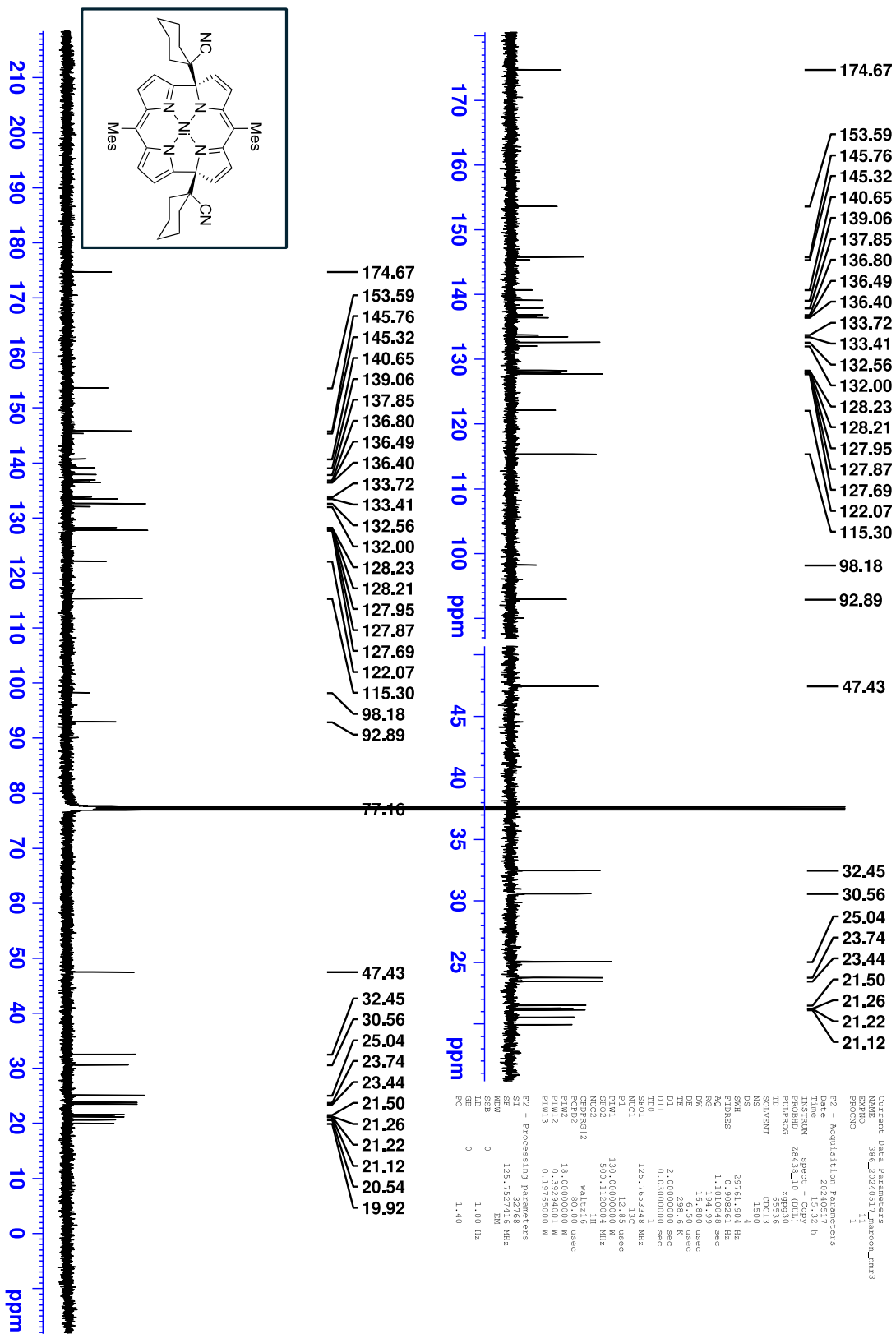
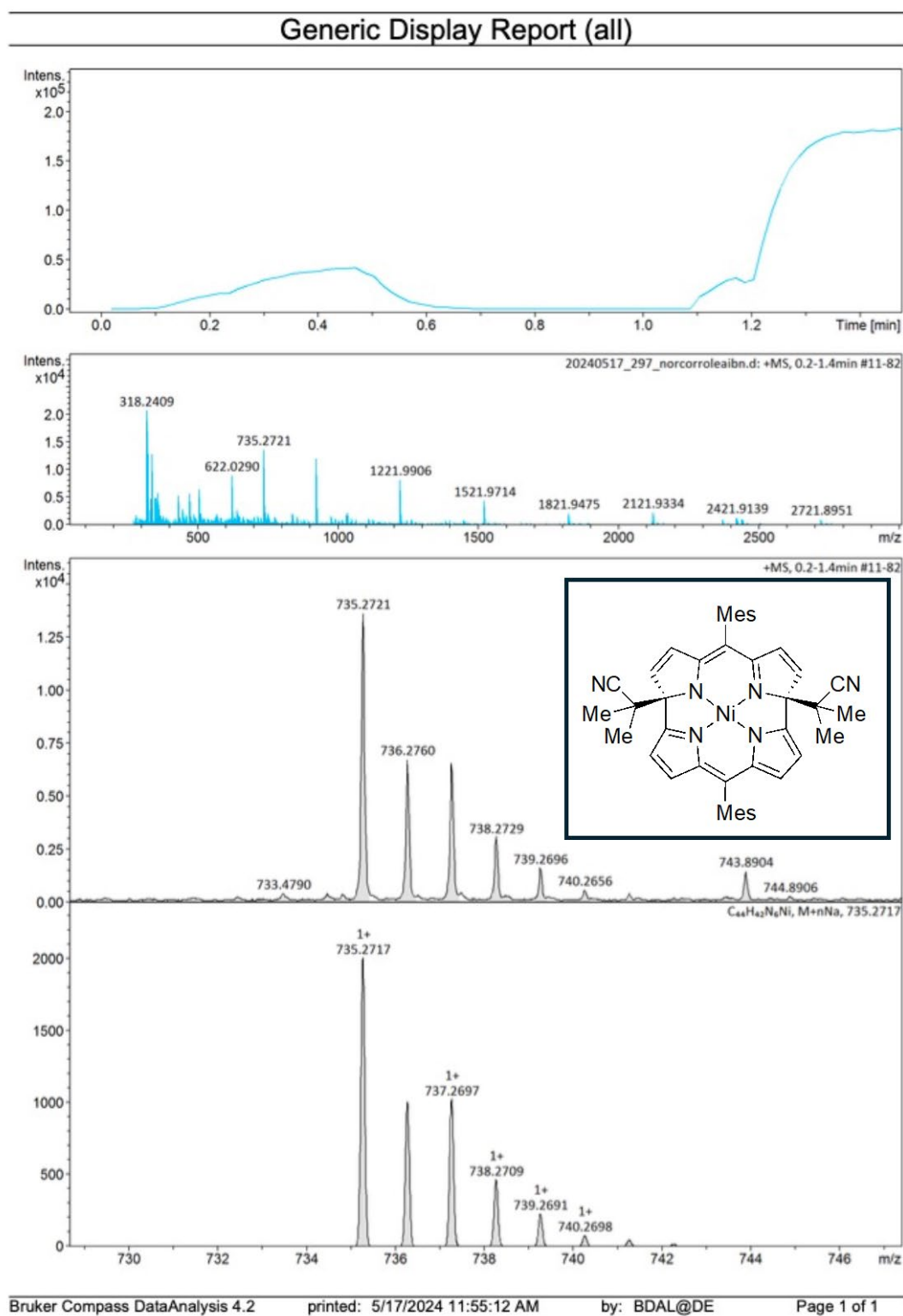


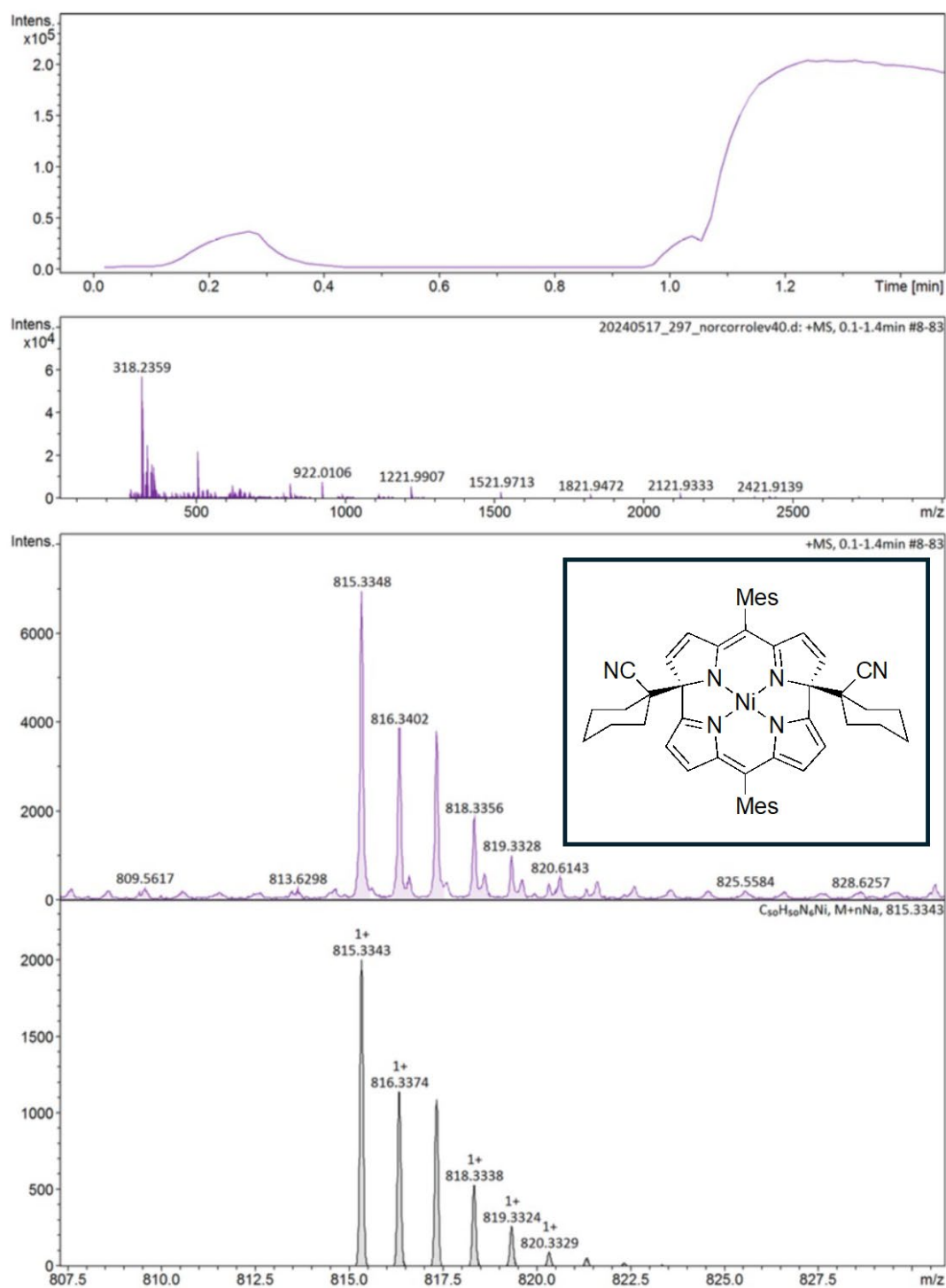
Figure S4. <sup>13</sup>C NMR spectrum of **2b** in CDCl<sub>3</sub> at 25 °C.

## 4. Mass spectra



**Figure S5.** ESI-TOF mass spectrum of **2a**.

## Generic Display Report (all)



**Figure S6.** ESI-TOF mass spectrum of **2b**.

## 5. Crystal data

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**Crystallographic data for 2a:** Single crystals were obtained by vapour diffusion of acetonitrile into a chloroform solution of **2a**.  $C_{44}H_{42}N_6Ni$ ,  $M_w = 713.54$ , monoclinic, space group  $P2_1/c$ ,  $a = 23.594(5)$ ,  $b = 15.092(5)$ ,  $c = 10.888(5)$  Å,  $\alpha = \gamma = 90.000(5)^\circ$ ,  $\beta = 101.917(4)^\circ$ ,  $V = 3793(2)$  Å<sup>3</sup>,  $Z = 4$ ,  $D_{calc} = 1.249$  g/cm<sup>3</sup>,  $T = 93$  K,  $R_1 = 0.0433$  ( $I > 2.0 \sigma(I)$ ),  $wR_2 = 0.0945$  (all data), GOF = 1.037, CCDC No. = 2356750.

**Table S1.** Crystallographic data of **2a**

compound	<b>2a</b>
Formula	$C_{44}H_{42}N_6Ni$
Formula weight	713.54
Crystal system	monoclinic
Space group	$P2_1/c$ (No. 14)
Crystal color	green
Crystal description	block
$a$ [Å]	23.594(5)
$b$ [Å]	15.092(5)
$c$ [Å]	10.888(5)
$\alpha$ [°]	90.000(5)
$\beta$ [°]	101.917(4)
$\gamma$ [°]	90.000(5)
$V$ [Å <sup>3</sup> ]	3793.(2)
$Z$	4
$d_{calc}$ [g cm <sup>-3</sup> ]	1.249
$R_1$ ( $I > 2\sigma(I)$ )	0.0433
$wR_2$ (all data)	0.0945
Goodness-of-fit	1.037
Temperature [K]	93(2)
Solvent	$CHCl_3/MeCN$
CCDC No.	2356750

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## 6. DFT Calculations

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### Cartesian coordinate of the optimized structures

#### Isobutyronitrile radical

C	-1.32841100	3.08648100	0.26478700
C	0.15290600	2.95254200	0.46721800
H	-1.72947300	3.99366900	0.72299500
H	-1.56999700	3.10297900	-0.80803400
H	-1.85469400	2.21993900	0.69106400
C	0.86450200	1.75908900	-0.10069700
H	1.93605500	1.77480700	0.11219100
H	0.44256000	0.82932800	0.30806900
H	0.72743000	1.71247200	-1.19093400
C	0.85769700	3.92266800	1.17260600
N	1.45376700	4.74315100	1.76919200

#### Norcorrole (1)

C	0.74868700	2.56943500	0.49147600
C	1.86096300	3.41251400	0.18722600
C	2.99609000	2.59730200	0.17826000
C	2.57314500	1.25511100	0.46876400
N	1.22006700	1.32519300	0.68673700
H	1.82830700	4.47491100	-0.01432000
H	4.01308600	2.90312500	-0.02937600
C	-0.74597800	2.57016500	0.49177000
C	-1.85754600	3.41432500	0.18794000
N	-1.21849600	1.32638400	0.68722700
C	-2.99347200	2.60021900	0.17941900
H	-1.82393300	4.47668600	-0.01363300
C	-2.57172500	1.25762100	0.46977900
H	-4.01024800	2.90702800	-0.02783300
C	2.57201500	-1.25790800	0.46962700
C	2.99375500	-2.60091900	0.18117700
C	1.85779700	-3.41496100	0.19039800

C	0.74618300	-2.57036800	0.49294500
N	1.21870700	-1.32637000	0.68673700
H	4.01058100	-2.90808500	-0.02525300
H	1.82420400	-4.47760000	-0.00971100
C	-0.74849300	-2.56963700	0.49324900
C	-1.86105800	-3.41315100	0.19117700
N	-1.21972300	-1.32517800	0.68721800
C	-2.99622400	-2.59800300	0.18242100
H	-1.82858400	-4.47582600	-0.00892900
C	-2.57305500	-1.25539800	0.47067100
H	-4.01343600	-2.90418200	-0.02357700
C	3.23732100	-0.00174300	0.37771400
C	-3.23716800	0.00141400	0.37901200
Ni	0.00016000	0.00002800	0.79164500
C	4.69905900	-0.00250900	0.07036300
C	5.13292900	-0.00776900	-1.26948200
C	5.62815600	0.00773200	1.12824700
C	6.50708300	-0.00415700	-1.52825000
C	6.99239700	0.01085700	0.82296200
C	7.45202000	0.00193200	-0.49762500
H	6.84678700	-0.00473600	-2.56212300
H	7.71332800	0.02179100	1.63811000
C	-4.69902800	0.00208000	0.07224800
C	-5.62769000	0.01361500	1.13050100
C	-5.13344200	-0.00312700	-1.26742100
C	-6.99204900	0.01806600	0.82576200
C	-6.50769600	0.00184300	-1.52564000
C	-7.45221200	0.00922400	-0.49463800
H	-7.71264100	0.02999100	1.64119600
H	-6.84781600	0.00132000	-2.55937600
C	-5.15427500	0.02499200	2.56593400
H	-4.53459100	-0.85287300	2.78462500
H	-4.53541500	0.90660700	2.77137000

H	-5.99814400	0.02975900	3.26238400
C	-4.13397700	-0.00882400	-2.40155600
H	-3.47919900	0.86942100	-2.35540400
H	-3.48470200	-0.89087100	-2.35108600
H	-4.63755800	-0.00967000	-3.37294000
C	-8.93206800	-0.02063400	-0.79903900
H	-9.30127200	-1.05314300	-0.86156000
H	-9.51265200	0.48508900	-0.01981200
H	-9.15508600	0.46263700	-1.75647500
C	4.13300300	-0.01210300	-2.40321600
H	3.48267900	-0.89336800	-2.35260200
H	3.47931000	0.86693000	-2.35668400
H	4.63619300	-0.01343100	-3.37480200
C	5.15532800	0.01917800	2.56387300
H	4.53739300	0.90133000	2.76979200
H	4.53489200	-0.85815200	2.78257900
H	5.99948000	0.02295400	3.25998500
C	8.93172100	-0.02937900	-0.80263400
H	9.29980000	-1.06225400	-0.86572200
H	9.15486700	0.45404000	-1.75996600
H	9.51315600	0.47541200	-0.02343900

Intermediate I

C	0.77559600	2.53266100	-1.23699100
C	1.81163500	3.19846700	-0.35442000
C	2.82628300	2.33689900	-0.13757000
C	2.46827200	1.03008700	-0.71483700
N	1.28813600	1.15040500	-1.33767400
H	1.76272600	4.23975100	-0.06018200
H	3.74172700	2.52484500	0.40956100
C	-0.67273300	2.40800000	-0.75869800
C	-1.71647800	3.26963900	-0.31633700
N	-1.15832000	1.16355200	-0.87192400
C	-2.84275000	2.46445200	-0.13975600

H	-1.64216500	4.33696100	-0.16109800
C	-2.47476400	1.11671700	-0.47191100
H	-3.81793600	2.77578900	0.21076000
C	2.53260400	-1.45552700	-0.70346000
C	2.92626100	-2.78907300	-0.28891100
C	1.79228200	-3.58562100	-0.30837100
C	0.70775300	-2.75947100	-0.75366600
N	1.21943400	-1.53304000	-1.06534000
H	3.92183700	-3.07316700	0.02510300
H	1.72403200	-4.62427400	-0.01234600
C	-0.73787300	-2.71970200	-0.65831100
C	-1.82887700	-3.53057600	-0.19842600
N	-1.21056300	-1.46457300	-0.85914400
C	-2.93508400	-2.70038000	-0.09679100
H	-1.78537900	-4.58525500	0.03955000
C	-2.52252100	-1.37071700	-0.47687900
H	-3.92644400	-2.97009000	0.24237500
C	3.16843200	-0.20456400	-0.51562300
C	-3.15782100	-0.11635200	-0.30568800
Ni	0.02045900	-0.16929300	-1.19051700
C	4.54438200	-0.15306300	0.06445600
C	5.64877000	0.07943700	-0.78014400
C	4.73654700	-0.31223900	1.45279700
C	6.93106100	0.13238700	-0.22566300
C	6.03549200	-0.25052700	1.96819500
C	7.14584600	-0.03585900	1.14586100
H	7.78265400	0.31019300	-0.87971000
H	6.18316400	-0.36760800	3.04014700
C	-4.57192100	-0.08842200	0.17551400
C	-4.84206500	-0.08224100	1.55788600
C	-5.62291000	-0.05960100	-0.76104100
C	-6.17433400	-0.05040000	1.98159300
C	-6.94011900	-0.02796100	-0.29377500



C	-7.23673700	-0.02609800	1.07278400
H	-6.38663100	-0.04241000	3.04893000
H	-7.75417200	-0.00214700	-1.01558400
C	-3.71275800	-0.10613400	2.56264900
H	-3.09774500	-1.00630000	2.44469900
H	-3.04507200	0.75292400	2.42726200
H	-4.09444300	-0.08490500	3.58790400
C	-5.32781700	-0.05565100	-2.24354300
H	-4.72778300	0.81824500	-2.52457300
H	-4.75037900	-0.94116200	-2.53504300
H	-6.25008400	-0.04004900	-2.83217400
C	-8.66905500	-0.02611900	1.55448400
H	-9.04955600	-1.05088800	1.66130200
H	-8.76417500	0.45929800	2.53186200
H	-9.32917300	0.49355100	0.85147100
C	5.44626900	0.27510900	-2.26583400
H	4.89516100	-0.56388500	-2.70640900
H	4.85819300	1.17837100	-2.47285800
H	6.40329800	0.37002200	-2.78828200
C	3.55766100	-0.52492600	2.37594300
H	2.80164000	0.25848900	2.24334600
H	3.05704200	-1.47838400	2.17132400
H	3.87159900	-0.52225700	3.42436300
C	8.54314100	-0.01001300	1.72063100
H	8.98855400	-1.01398200	1.72007700
H	9.20568900	0.63908900	1.13768600
H	8.54494400	0.34526900	2.75689000
C	0.77943500	3.20954500	-2.69950200
C	2.18363500	3.16735700	-3.34213500
H	2.92761400	3.68794400	-2.73566100
H	2.49070500	2.12462900	-3.46003500
H	2.15214100	3.63701600	-4.32976600
C	-0.23331500	2.50869500	-3.63243900

H	0.01536500	1.44541700	-3.69370200
H	-1.25726700	2.60415900	-3.26581500
H	-0.17786900	2.94779500	-4.63332300
C	0.37823800	4.61554000	-2.51260500
N	0.07129300	5.72141200	-2.33472600
<b>2a</b>			
C	0.69601100	2.73481100	-0.78956600
C	1.67288600	3.40389400	0.15449700
C	2.65303600	2.53697900	0.46566500
C	2.33329900	1.23008700	-0.13964100
N	1.24174700	1.36830200	-0.90985100
H	1.59538300	4.44367200	0.44893900
H	3.51151900	2.71306200	1.10159800
C	-0.73583200	2.56429500	-0.28823900
C	-1.77476400	3.40458400	0.20685700
N	-1.18711500	1.30995400	-0.36991200
C	-2.86775300	2.57588100	0.44963000
H	-1.71403600	4.47414400	0.35230800
C	-2.48361500	1.23911000	0.10551400
H	-3.82851600	2.86171300	0.85692600
C	2.33199200	-1.23318400	-0.14541200
C	2.65035000	-2.54364100	0.45287700
C	1.66918900	-3.40781800	0.13735000
C	0.69299300	-2.73273500	-0.80313500
N	1.24026200	-1.36628400	-0.91634500
H	3.50872800	-2.72402000	1.08774000
H	1.59060800	-4.44904800	0.42632400
C	-0.73865000	-2.56319800	-0.30089900
C	-1.77867300	-3.40489200	0.18950600
N	-1.18848100	-1.30793600	-0.37607000
C	-2.87081100	-2.57623700	0.43622300
H	-1.71921600	-4.47527700	0.32929600
C	-2.48506800	-1.23810900	0.09928400

H	-3.83205600	-2.86314100	0.84159900
C	2.94779900	-0.00269400	0.19134800
C	-3.12630800	0.00033700	0.31765000
Ni	-0.00981800	0.00149100	-0.83308300
C	4.14626400	-0.00483200	1.08859900
C	5.44323900	0.00952600	0.53716800
C	3.98000600	-0.01434000	2.48989100
C	6.55095200	0.01199700	1.39110600
C	5.11159600	-0.01172300	3.31225800
C	6.40565800	-0.00184800	2.78189500
H	7.55097200	0.02630500	0.96151300
H	4.98041300	-0.01575800	4.39279300
C	-4.51244700	-0.00027200	0.87505500
C	-4.70341600	-0.00531400	2.27018800
C	-5.61291700	0.00976800	-0.00262800
C	-6.01031800	-0.00151900	2.76715900
C	-6.90216800	0.01317500	0.53789100
C	-7.12197500	0.00456400	1.91884500
H	-6.16285800	-0.00199800	3.84462000
H	-7.75549800	0.02408600	-0.13729800
C	-3.51900400	-0.00998800	3.20964100
H	-2.88724200	-0.89084100	3.04435400
H	-2.88422600	0.86974000	3.04988700
H	-3.84270000	-0.01276200	4.25474200
C	-5.40106800	0.02101800	-1.49925800
H	-4.82992500	0.90368200	-1.81125100
H	-4.82977000	-0.85690800	-1.82408400
H	-6.35488800	0.02479500	-2.03522300
C	-8.52471100	-0.02640300	2.47981000
H	-8.87351500	-1.05935000	2.61231500
H	-8.57660000	0.46218400	3.45883600
H	-9.23524800	0.47335000	1.81252200
C	5.63217500	0.02707600	-0.96281500

H	5.16467400	-0.84630800	-1.43346600
H	5.16182800	0.90939100	-1.41373500
H	6.69353500	0.03205400	-1.23060900
C	2.59409600	-0.02193700	3.09544700
H	2.01428900	0.85367200	2.77926300
H	2.02278900	-0.90222300	2.77676900
H	2.63932600	-0.02354300	4.18904800
C	7.61493900	-0.03403000	3.68774700
H	7.91903100	-1.06700900	3.90436600
H	8.47412700	0.46757600	3.22916600
H	7.41071700	0.45197800	4.64806100
C	0.69147000	3.44929500	-2.22089900
C	2.10961100	3.47494200	-2.83179800
H	2.81830500	4.00656400	-2.19262700
H	2.45640300	2.44618000	-2.96102000
H	2.08698300	3.96695500	-3.80881800
C	-0.27809800	2.73156700	-3.18569200
H	0.02334100	1.68398200	-3.27647400
H	-1.30791300	2.76552600	-2.82326800
H	-0.23822500	3.20204200	-4.17293200
C	0.23207800	4.83398100	-2.00892900
N	-0.12103600	5.92205900	-1.80843100
C	0.68753600	-3.43983600	-2.23813600
C	2.10561100	-3.46407500	-2.84924500
C	-0.28115700	-2.71597500	-3.19921900
H	2.81368500	-3.99988800	-2.21290200
H	2.08230000	-3.95096400	-3.82881300
H	2.45366600	-2.43508300	-2.97312200
H	-1.31096900	-2.75020300	-2.83680600
H	0.02181800	-1.66840400	-3.28492400
H	-0.24211500	-3.18165000	-4.18876600
C	0.22650200	-4.82504600	-2.03327300
N	-0.12784000	-5.91373300	-1.83831300

**Selected absorption wavelengths, energies, and oscillator strengths (f) of 2a calculated at the M06/6-31G(d)+SDD//B3LYP-D3/6-31G(d)+SDD level of theory.**

Excited State	1:	Singlet-A	1.8500 eV	670.17 nm	f=0.0026	<S**2>=0.000
	169 ->185	0.11936				
	169 ->188	-0.19458				
	173 ->188	0.13363				
	178 ->185	0.15996				
	178 ->188	-0.22009				
	183 ->185	0.46660				
	183 ->188	-0.34879				

This state for optimization and/or second-order correction.

Total Energy, E(TD-HF/TD-DFT) = -2199.89793617

Copying the excited state density for this state as the 1-particle RhoCI density.

Excited State	2:	Singlet-A	2.1748 eV	570.09 nm	f=0.0042	<S**2>=0.000
	170 ->185	-0.12632				
	170 ->188	0.21684				
	174 ->188	0.13791				
	181 ->185	-0.38318				
	181 ->188	0.45789				
	183 ->184	-0.17508				

Excited State	3:	Singlet-A	2.1957 eV	564.67 nm	f=0.0000	<S**2>=0.000
	175 ->185	-0.40637				
	175 ->188	0.52789				
	178 ->185	-0.12213				
	178 ->188	0.16151				
	175 <-188	-0.10937				

Excited State	4:	Singlet-A	2.2784 eV	544.17 nm	f=0.0054	<S**2>=0.000
	181 ->188	0.12892				
	183 ->184	0.68084				

Excited State	5:	Singlet-A	2.5380 eV	488.51 nm	f=0.0001	<S**2>=0.000
	171 ->185	0.16419				
	171 ->188	-0.25654				
	172 ->185	0.14928				
	172 ->188	-0.23511				
	173 ->185	0.22274				
	173 ->188	-0.33981				
	178 ->185	0.23145				
	178 ->188	-0.26364				
	182 ->184	0.10040				
	183 ->185	-0.11918				

Excited State	6:	Singlet-A	2.7064 eV	458.11 nm	f=0.0360	<S**2>=0.000
	173 ->185	-0.12028				
	173 ->188	0.15877				
	181 ->184	0.13044				
	182 ->184	0.51325				
	183 ->185	-0.29729				
	183 ->188	-0.21415				

## 7. References

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1. Ito, T.; Hayashi, Y.; Shimizu, S.; Shin, J.-Y.; Kobayashi, N.; Shinokubo, H. *Angew. Chem. Int. Ed.* **2012**, *51*, 8542–8545.