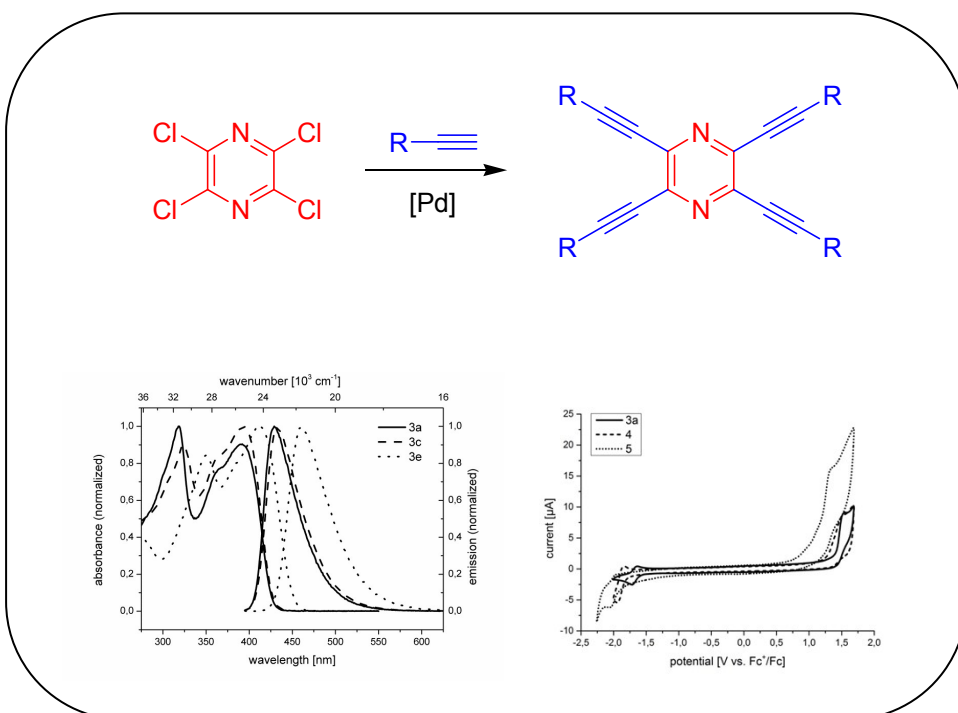


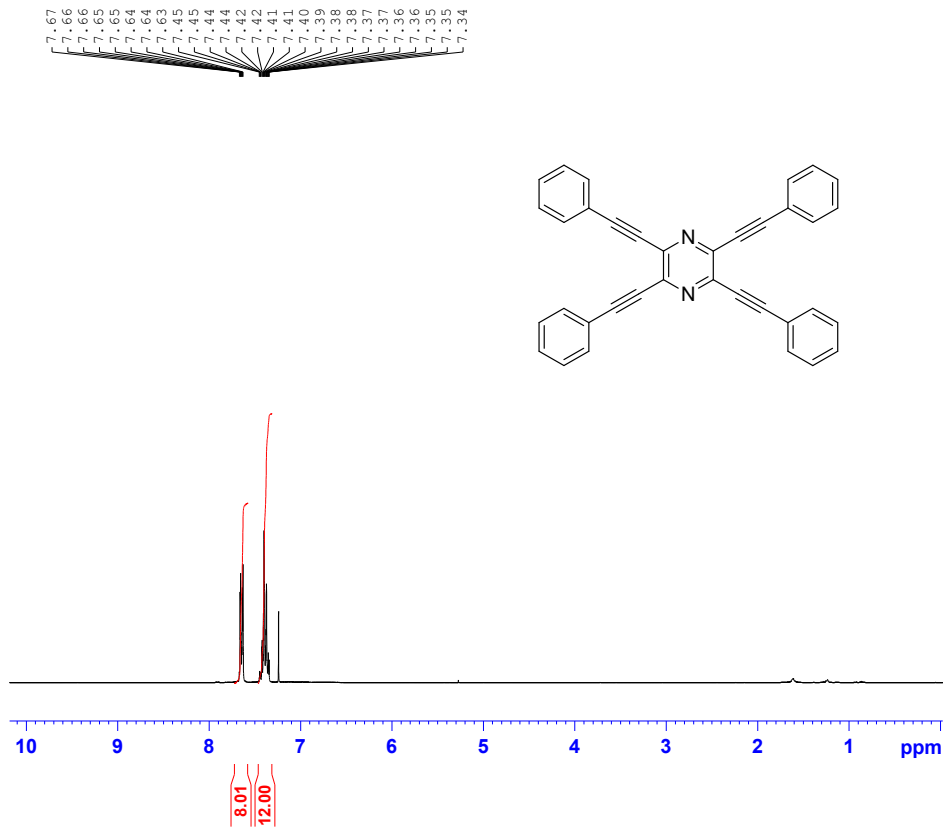
Supporting Information

Straightforward Synthesis of Tetrachloropyrazines and Their Photophysical Properties

Andranik Petrosyan, Peter Ehlers, Annette-E. Surkus, Taniel V. Ghochikyan,
Ashot S. Saghyan, Stefan Lochbrunner, Peter Langer



¹H- and ¹³C-NMR spectra

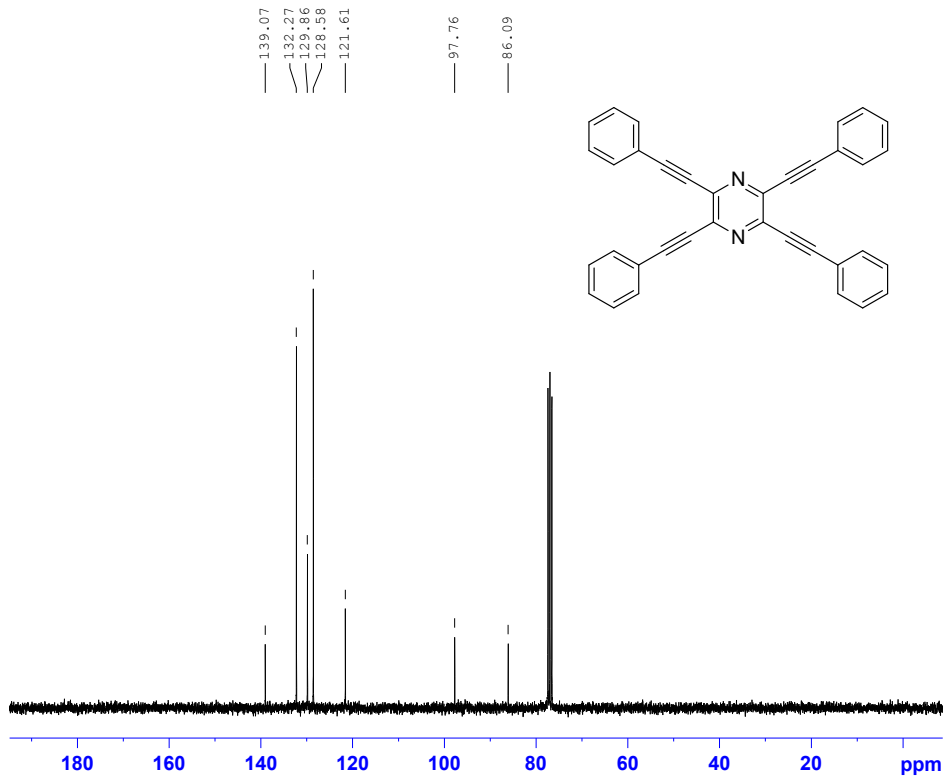


Current Data Parameters
 NAME AP-120
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120711
 Time_ 8.01
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 32
 DS 4
 SWH 6172.839 Hz
 FIDRES 0.188380 Hz
 AQ 2.6542079 sec
 RG 322.5
 DW 81.000 usec
 DE 6.00 usec
 TE 296.0 K
 D1 1.0000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 11.00 usec
 PL1 0 dB
 SF01 300.1318534 MHz

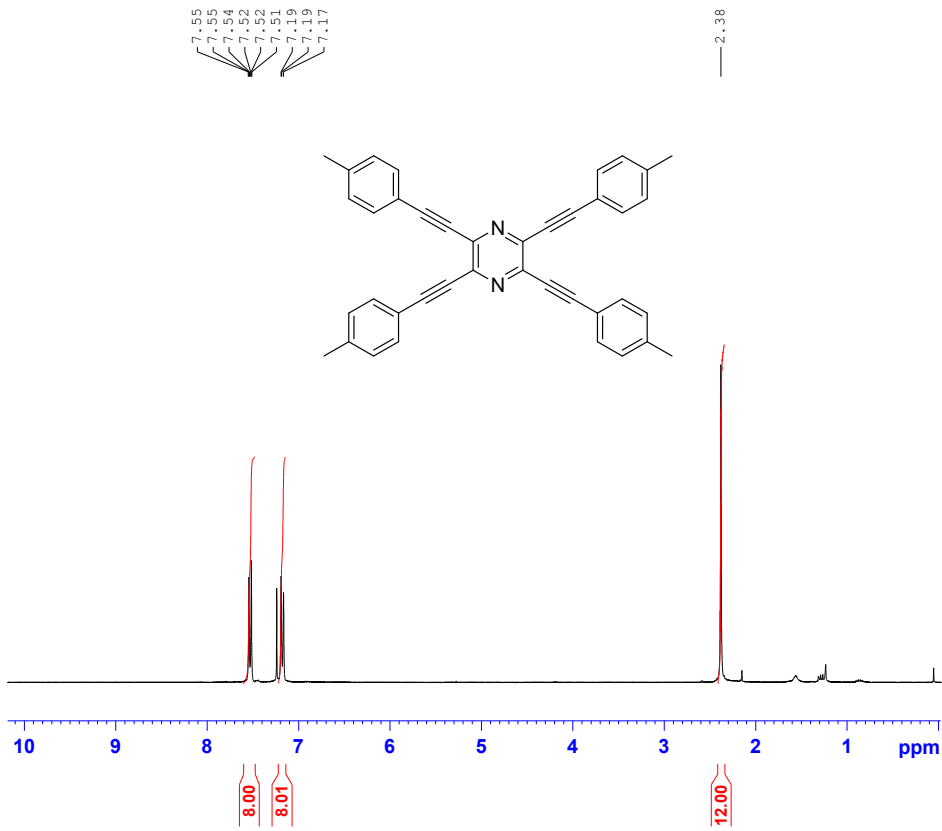
F2 - Processing parameters
 SI 32768
 SF 300.1300214 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00



Current Data Parameters
 NAME AP-120
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120711
 Time_ 8.15
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 256
 DS 4
 SWH 21097.047 Hz
 FIDRES 0.643831 Hz
 AQ 0.7766016 sec
 RG 32768
 DW 23.700 usec
 DE 6.00 usec
 TE 296.5 K
 D1 2.0000000 sec
 d11 0.0300000 sec
 DELTA 1.8999999 sec
 TD0 1
 SF01 75.4771825 MHz
 NUC1 13C
 P1 9.60 usec
 PLW1 -1.0000000 W
 SF02 300.1312005 MHz
 NUC2 1H
 CPDPRG2 waltz16
 PCPD2 100.00 usec
 PLW2 -1.0000000 W
 PLW12 -1.0000000 W
 PLW13 -1.0000000 W

F2 - Processing parameters
 SI 32768
 SF 75.4677541 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

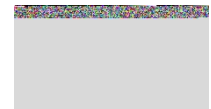
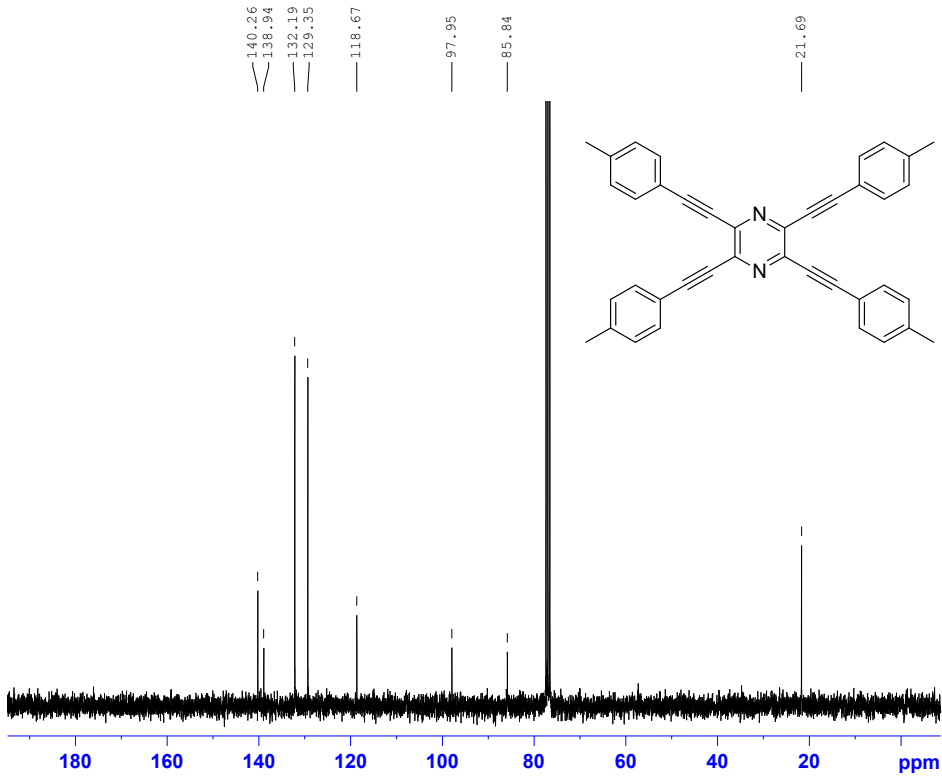


Current Data Parameters
 NAME AP-179
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120830
 Time 3.28
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDC13
 NS 32
 DS 4
 SWH 6172.839 Hz
 FIDRES 0.188380 Hz
 AQ 2.6542079 sec
 RG 456.1
 DW 81.000 usec
 DE 6.00 usec
 TE 296.0 K
 D1 1.00000000 sec
 TD0 1

==== CHANNEL f1 =====
 NUC1 1H
 P1 11.00 usec
 PL1 0 dB
 SFO1 300.1318534 MHz

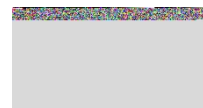
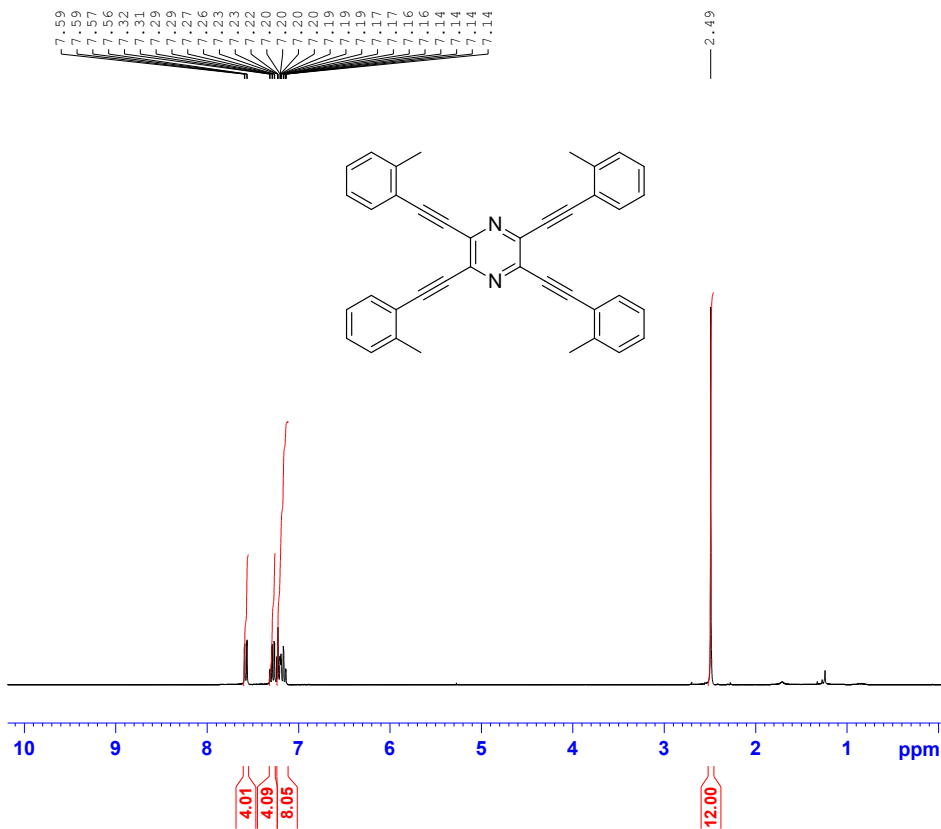
F2 - Processing parameters
 SI 32768
 SF 300.1300215 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00



Current Data Parameters
 NAME AP-179
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120830
 Time 3.40
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CDC13
 NS 256
 DS 4
 SWH 21097.047 Hz
 FIDRES 0.643831 Hz
 AQ 0.7766016 sec
 RG 32768
 DW 23.700 usec
 DE 6.00 usec
 TE 296.5 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1
 SFO1 75.4771825 MHz
 NUC1 13C
 P1 9.60 usec
 PLM1 -1.00000000 W
 SFO2 300.1312005 MHz
 NUC2 1H
 CPDPRG[2] waltz16
 PCPD2 100.00 usec
 PLW2 -1.00000000 W
 PLW12 -1.00000000 W
 PLW13 -1.00000000 W

F2 - Processing parameters
 SI 32768
 SF 75.4677531 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

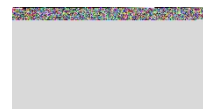
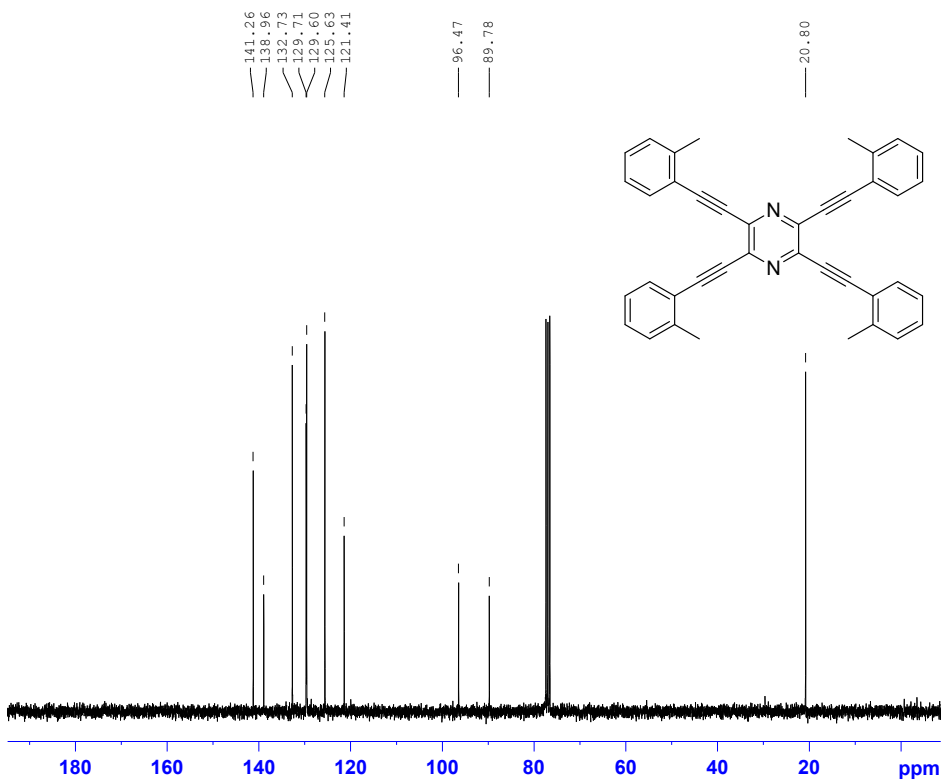


Current Data Parameters
NAME AP-401
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130620
Time 5.38
INSTRUM AV300
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 4
SWH 6172.839 Hz
FIDRES 0.188380 Hz
AQ 2.6542079 sec
RG 203.2
DW 81.000 usec
DE 6.00 usec
TE 296.1 K
D1 1.0000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 11.00 usec
PL1 0 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300214 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

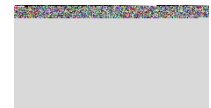
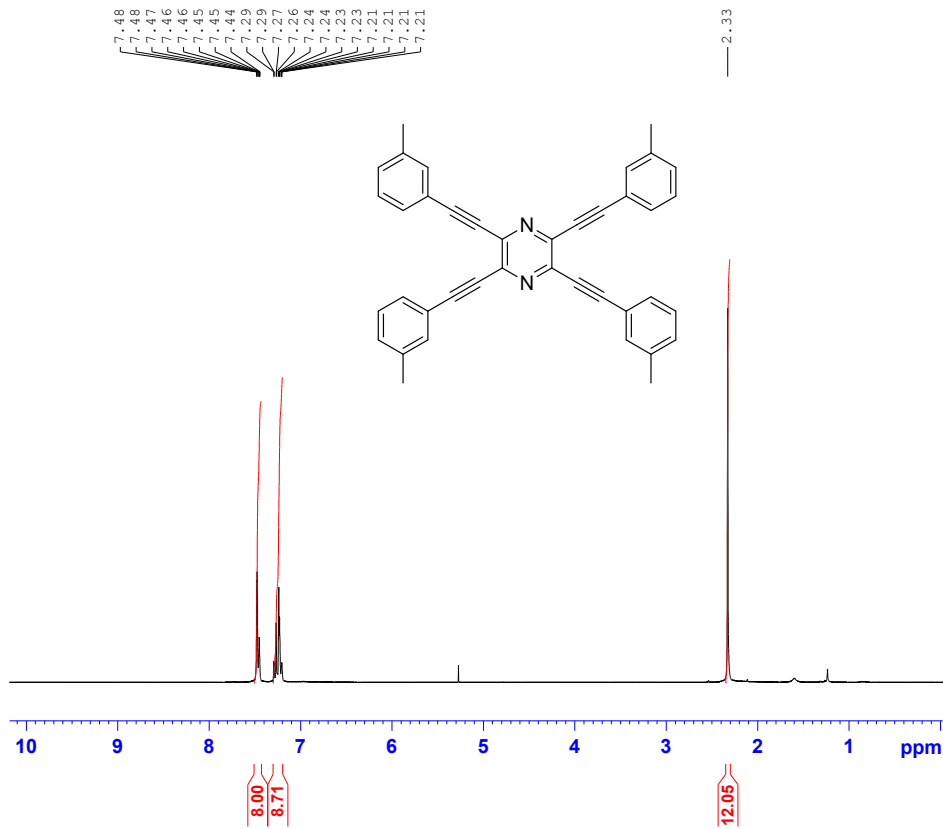


Current Data Parameters
NAME AP-401
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130620
Time 5.52
INSTRUM AV300
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 256
DS 4
SWH 21097.047 Hz
FIDRES 0.643831 Hz
AQ 0.7766016 sec
RG 32768
DW 23.700 usec
DE 6.00 usec
TE 296.7 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.89999999 sec
TD0 1

SFO1 75.4771825 MHz
NUC1 13C
P1 9.60 usec
PLW1 -1.0000000 W
SFO2 300.1312005 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 100.00 usec
PLW2 -1.0000000 W
PLW12 -1.0000000 W
PLW13 -1.0000000 W

F2 - Processing parameters
SI 32768
SF 75.4677548 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

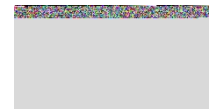
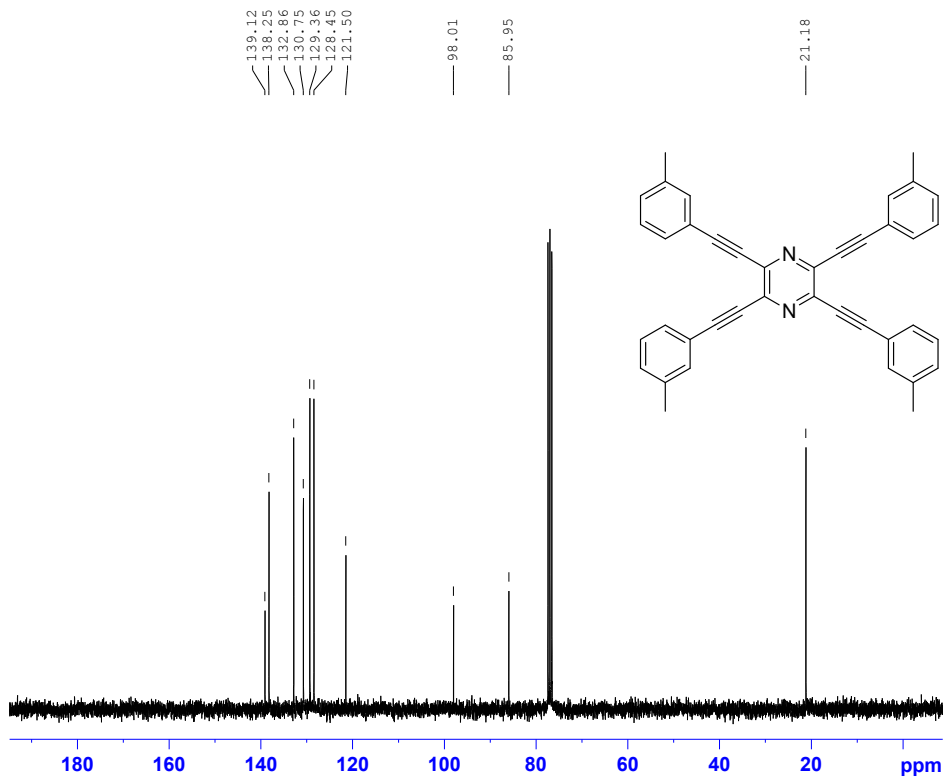


Current Data Parameters
 NAME AP-402
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130622
 Time 6.52
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 32
 DS 4
 SWH 6172.839 Hz
 FIDRES 0.188380 Hz
 AQ 2.6542079 sec
 RG 322.5
 DW 81.000 usec
 DE 6.00 usec
 TE 295.6 K
 D1 1.00000000 sec
 TD0 1

==== CHANNEL f1 =====
 NUC1 1H
 P1 11.00 usec
 PL1 0 dB
 SFO1 300.1318534 MHz

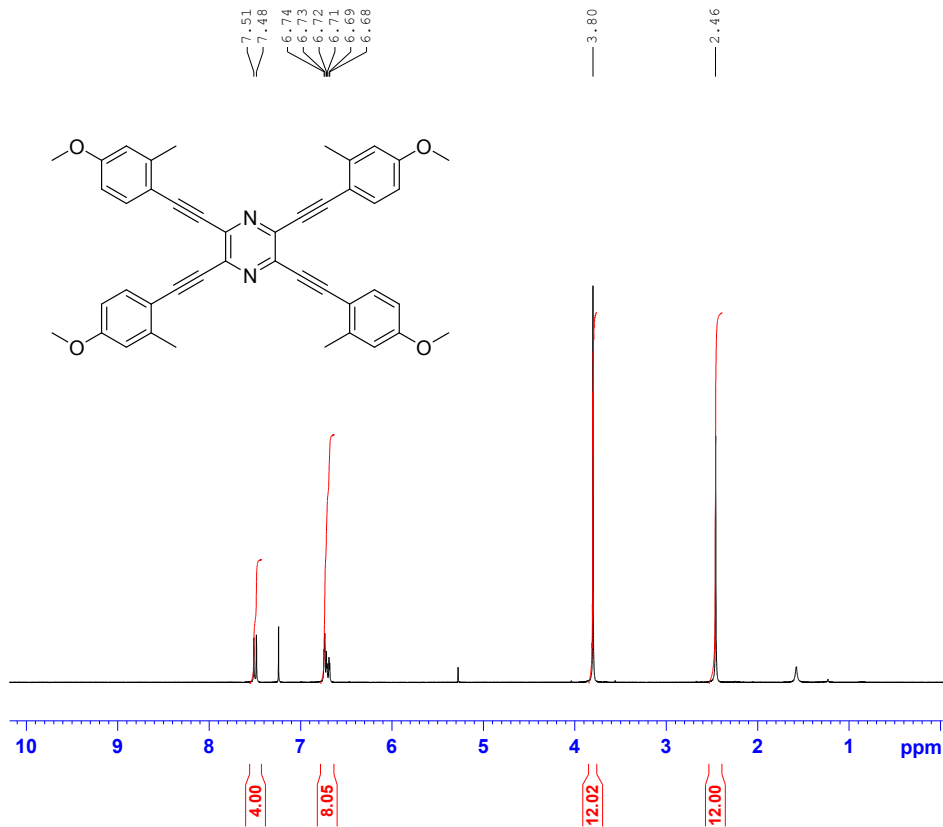
F2 - Processing parameters
 SI 32768
 SF 300.1300216 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00



Current Data Parameters
 NAME AP-402
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130622
 Time 7.05
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 256
 DS 4
 SWH 21097.047 Hz
 FIDRES 0.643831 Hz
 AQ 0.7766016 sec
 RG 32768
 DW 23.700 usec
 DE 6.00 usec
 TE 296.2 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1
 SFO1 75.4771825 MHz
 NUC1 13C
 P1 9.60 usec
 PLW1 -1.00000000 W
 SFO2 300.1312005 MHz
 NUC2 1H
 CPDPRG[2] waltz16
 PCPD2 100.00 usec
 PLW2 -1.00000000 W
 PLW12 -1.00000000 W
 PLW13 -1.00000000 W

F2 - Processing parameters
 SI 32768
 SF 75.4677541 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



```

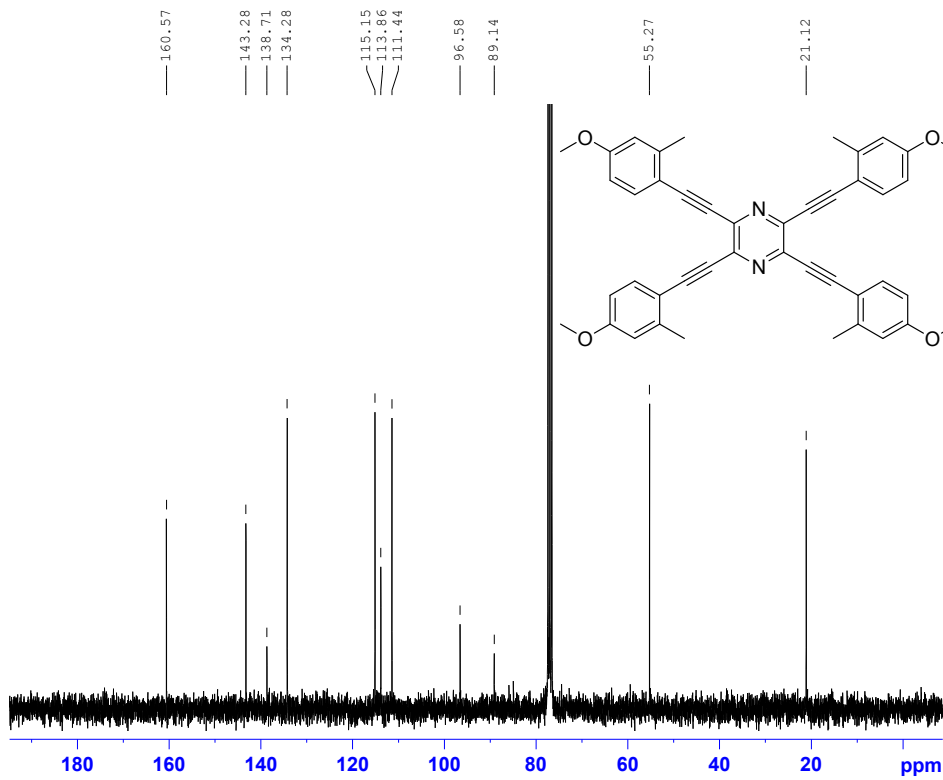
Current Data Parameters
NAME          AP-406
EXPNO         10
PROCNO        1

F2 - Acquisition Parameters
Date_         20130625
Time          2.24
INSTRUM       AV300
PROBHD        5 mm PABBO BB-
PULPROG       zg30
TD            32768
SOLVENT       CDCl3
NS            32
DS            4
SWH           6172.839 Hz
FIDRES        0.188380 Hz
AQ            2.6542079 sec
RG            574.7
DE            6.00 usec
TE            295.3 K
D1            1.00000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          1H
P1            11.00 usec
PL1           0 dB
SFO1          300.1318534 MHz

F2 - Processing parameters
SI            32768
SF            300.1300214 MHz
WDW           EM
SSB           0
LB            0.10 Hz
GB            0
PC            1.00

```



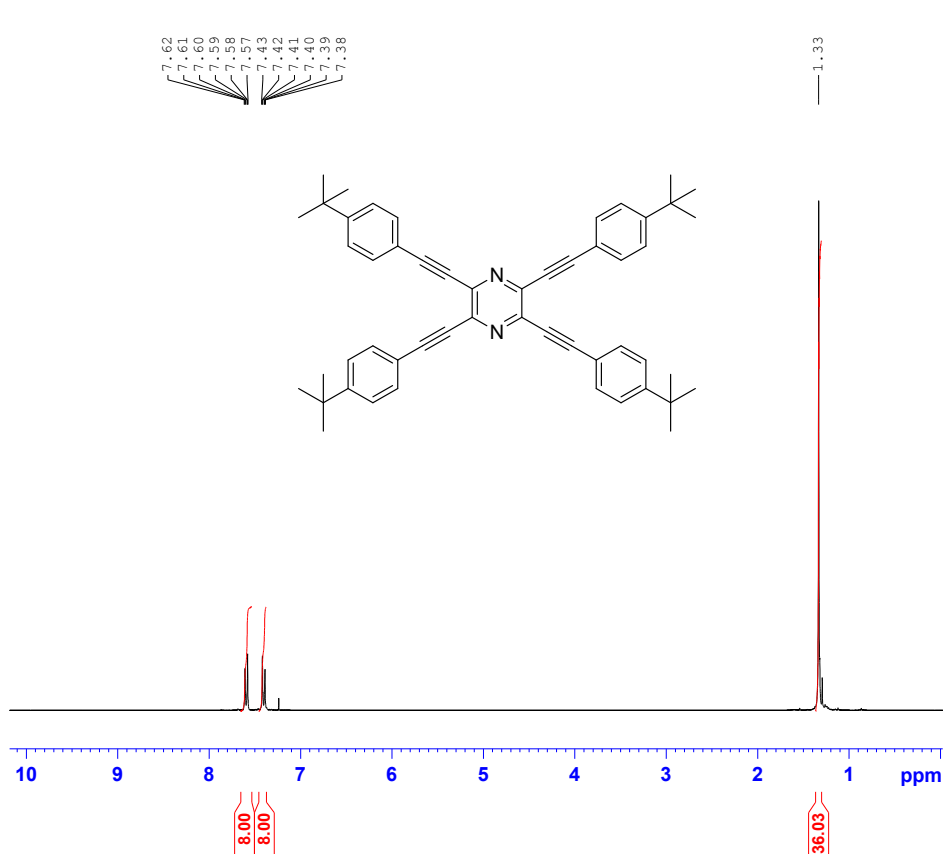
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Current Data Parameters
NAME          AP-406
EXPNO         11
PROCNO        1

F2 - Acquisition Parameters
Date_         20130625
Time          19.03
INSTRUM       AV300
PROBHD        5 mm PABBO BB-
PULPROG       zgpg30
TD            32768
SOLVENT       CDCl3
NS            1000
DS            4
SWH           21097.047 Hz
FIDRES        0.643831 Hz
AQ            0.7766016 sec
RG            32768
DE            23.700 usec
TE            296.0 K
D1            2.00000000 sec
d11           0.03000000 sec
DELTA         1.89999998 sec
TD0           1
SFO1          75.4771825 MHz
NUC1          13C
P1            9.60 usec
PLW1          -1.00000000 W
SFO2          300.1312005 MHz
NUC2          1H
CPDPRG[2]    waltz16
PCPD2         100.00 usec
PLW2          -1.00000000 W
PLW12         -1.00000000 W
PLW13         -1.00000000 W

F2 - Processing parameters
SI            32768
SF            75.4677528 MHz
WDW           EM
SSB           0
LB            1.00 Hz
GB            0
PC            1.40

```

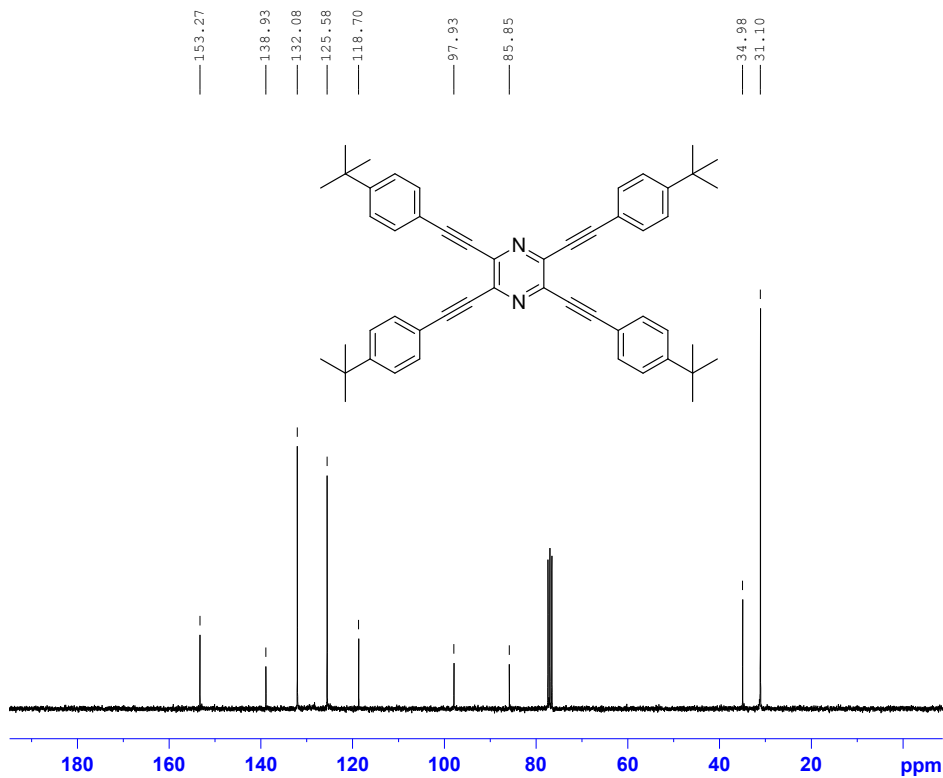


Current Data Parameters
 NAME AP-176
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120826
 Time_ 8.23
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDC13
 NS 32
 DS 4
 SWH 6172.839 Hz
 FIDRES 0.188380 Hz
 AQ 2.6542079 sec
 RG 101.6
 DW 81.000 usec
 DE 6.00 usec
 TE 296.1 K
 D1 1.00000000 sec
 TD0 1

==== CHANNEL f1 =====
 NUC1 1H
 P1 11.00 usec
 PL1 0 dB
 SFO1 300.1318534 MHz

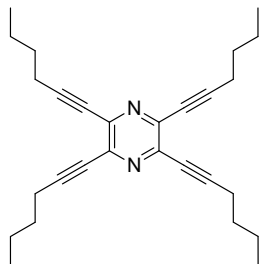
F2 - Processing parameters
 SI 32768
 SF 300.1300215 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 FC 1.00



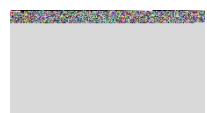
Current Data Parameters
 NAME AP-176
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20120826
 Time_ 8.38
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CDC13
 NS 256
 DS 4
 SWH 21097.047 Hz
 FIDRES 0.643831 Hz
 AQ 0.7766016 sec
 RG 32768
 DW 23.700 usec
 DE 6.00 usec
 TE 296.6 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1
 SFO1 75.4771825 MHz
 NUC1 13C
 P1 9.60 usec
 PLW1 -1.00000000 W
 SFO2 300.1312005 MHz
 NUC2 1H
 CPDPRG2 waltz16
 PCPD2 100.00 usec
 PLW2 -1.00000000 W
 PLW12 -1.00000000 W
 PLW13 -1.00000000 W

F2 - Processing parameters
 SI 32768
 SF 75.4677554 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 FC 1.40

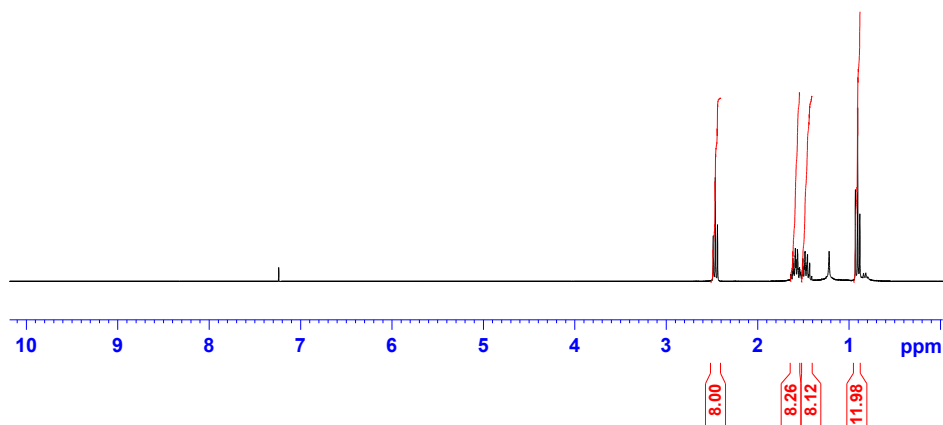


2.49
2.46
2.44
1.64
1.63
1.62
1.61
1.60
1.59
1.58
1.57
1.56
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1.54
1.54
1.53
1.53
1.52
1.51
1.51
1.50
1.49



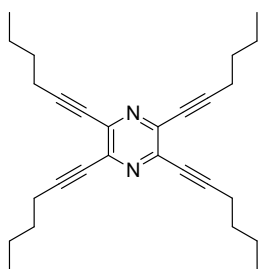
Current Data Parameters
NAME AP-194
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120914
Time_ 6.01
INSTRUM AV300
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 32768
SOLVENT CDC13
NS 32
DS 4
SWH 6172.839 Hz
FIDRES 0.188380 Hz
AQ 2.6542079 sec
RG 101.6
DW 81.000 usec
DE 6.00 usec
TE 295.4 K
D1 1.00000000 sec
TDO 1



==== CHANNEL f1 =====
NUC1 1H
P1 11.00 usec
PL1 0 dB
SF01 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300215 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
FC 1.00

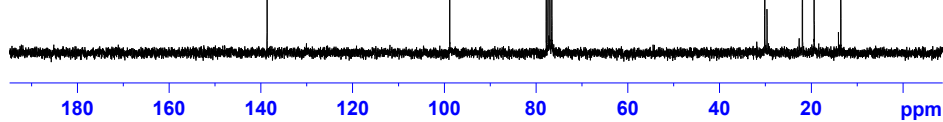


138.69
98.86
77.80
30.16
21.95
19.39
13.38

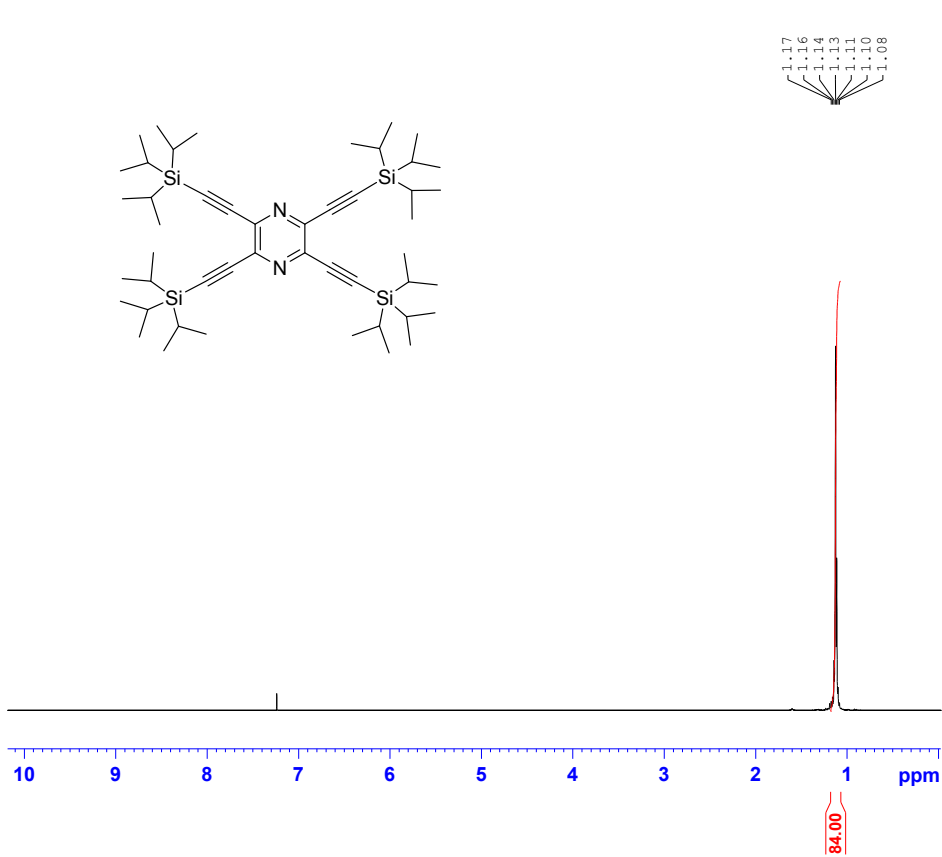


Current Data Parameters
NAME AP-194
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20120914
Time_ 6.14
INSTRUM AV300
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 32768
SOLVENT CDC13
NS 256
DS 4
SWH 21097.047 Hz
FIDRES 0.643831 Hz
AQ 0.7766016 sec
RG 32768
DW 23.700 usec
DE 6.00 usec
TE 295.9 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TDO 1
SF01 75.4771825 MHz
NUC1 13C
P1 9.60 usec
PLW1 -1.00000000 W
SF02 300.1312005 MHz
NUC2 1H
CPDPRG[2] waltz16
PCPD2 100.00 usec
PLW2 -1.00000000 W
PLW12 -1.00000000 W
PLW13 -1.00000000 W



F2 - Processing parameters
SI 32768
SF 75.4677534 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

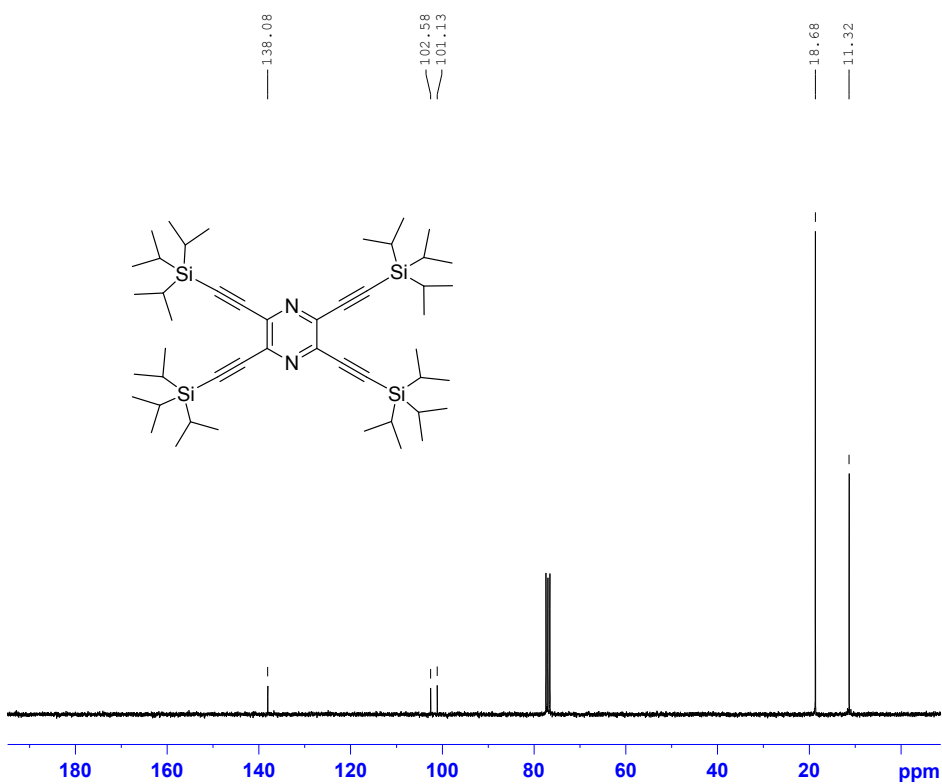


Current Data Parameters
 NAME AP-203
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121001
 Time_ 10.42
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 32
 DS 4
 SWH 6172.839 Hz
 FIDRES 0.188380 Hz
 AQ 2.6542079 sec
 RG 128
 DW 81.000 usec
 DE 6.00 usec
 TE 294.5 K
 D1 1.0000000 sec
 TD0 1

==== CHANNEL f1 =====
 NUC1 1H
 P1 11.00 usec
 PL1 0 dB
 SF01 300.1318534 MHz

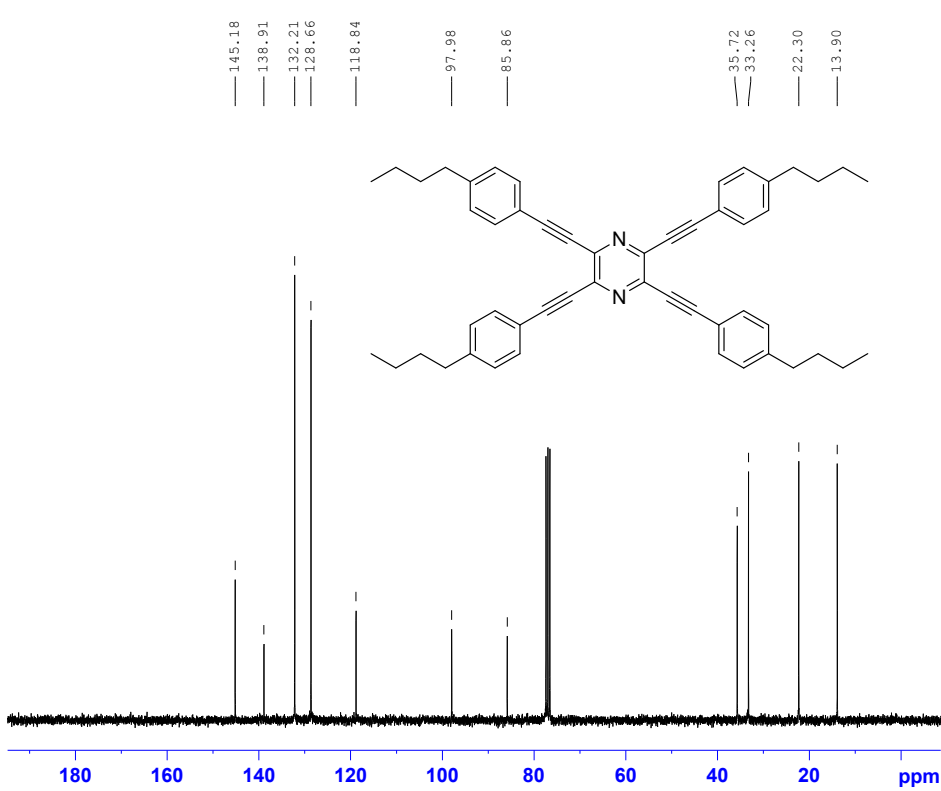
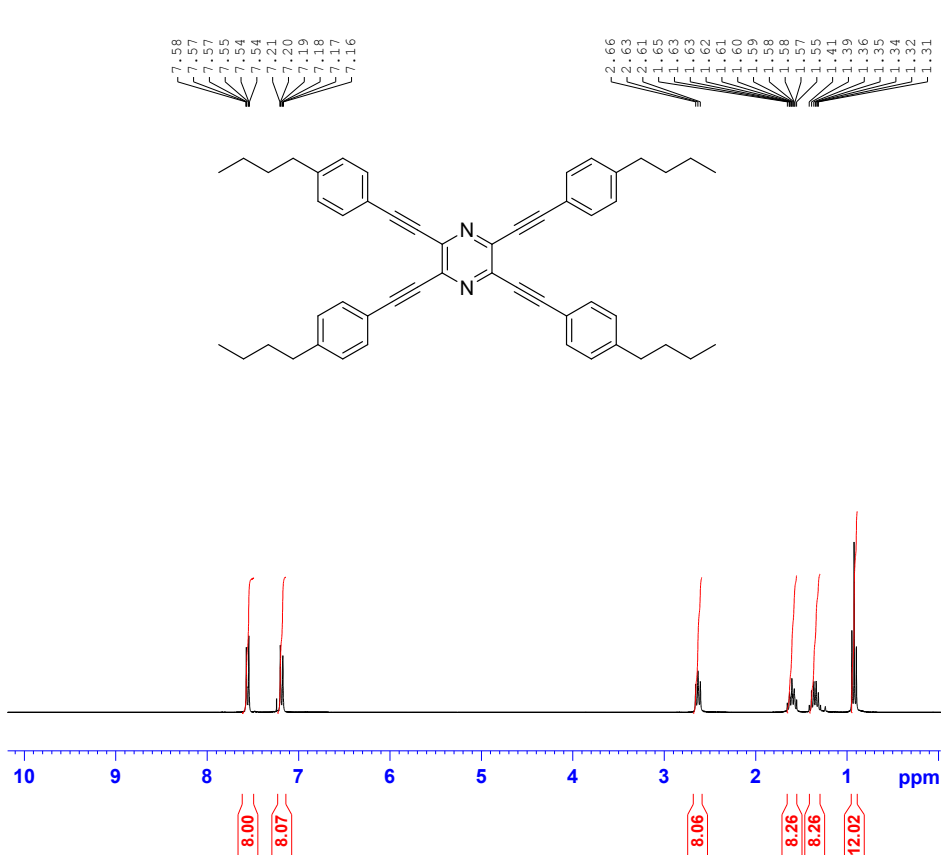
F2 - Processing parameters
 SI 32768
 SF 300.1300215 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 FC 1.00

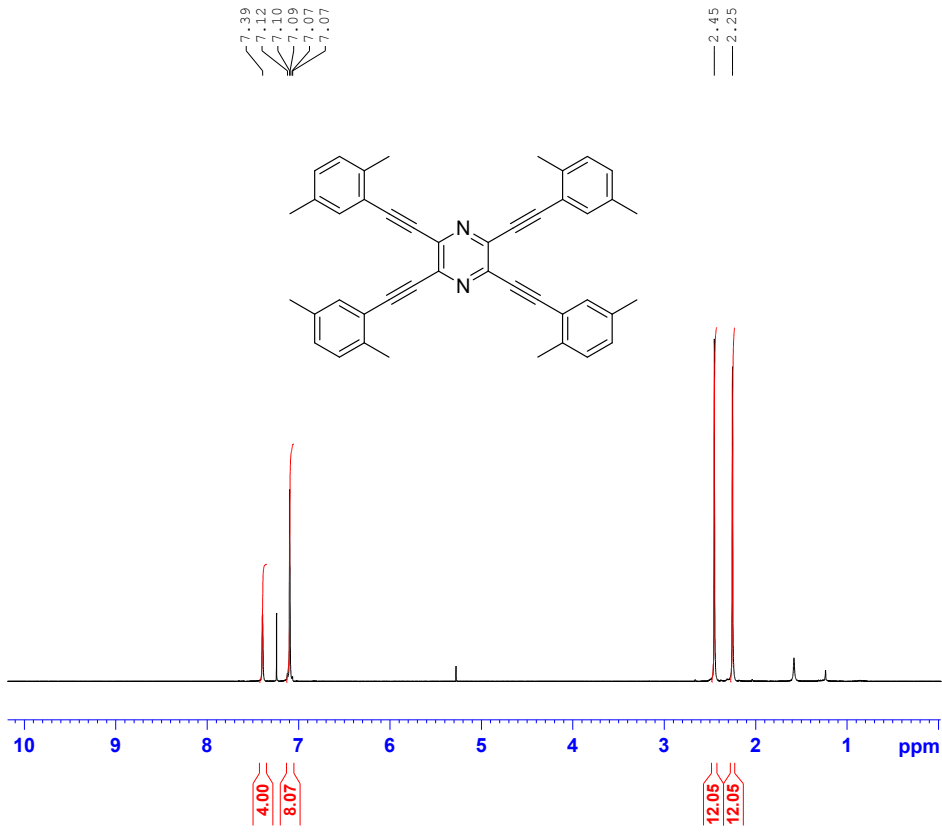


Current Data Parameters
 NAME AP-203
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121001
 Time_ 10.55
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 FULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 256
 DS 4
 SWH 21097.047 Hz
 FIDRES 0.643831 Hz
 AQ 0.7766016 sec
 RG 32768
 DW 23.700 usec
 DE 6.00 usec
 TE 295.1 K
 D1 2.0000000 sec
 d11 0.0300000 sec
 DELTA 1.8999999 sec
 TD0 1
 SF01 75.4771825 MHz
 NUC1 13C
 P1 9.60 usec
 PLW1 -1.0000000 W
 SF02 300.1312005 MHz
 NUC2 1H
 CPDPRG2 waltz16
 FCPD2 100.00 usec
 PLW2 -1.0000000 W
 PLW12 -1.0000000 W
 PLW13 -1.0000000 W

F2 - Processing parameters
 SI 32768
 SF 75.4677526 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 FC 1.40



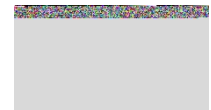
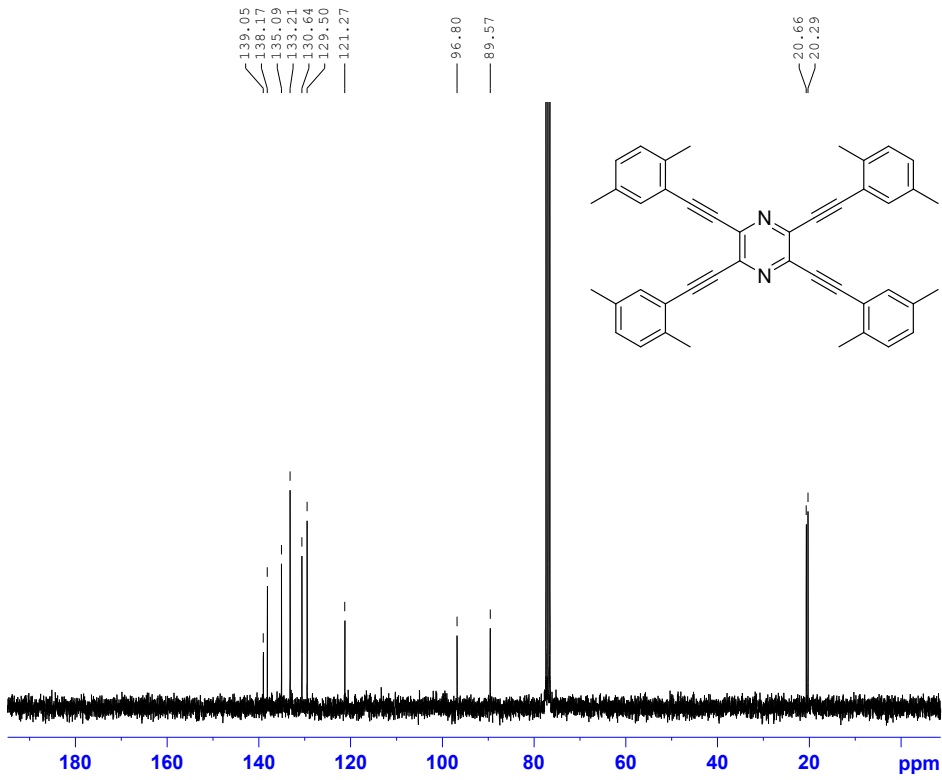


Current Data Parameters
 NAME AP-405
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130622
 Time_ 7.53
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 32
 DS 4
 SWH 6172.839 Hz
 FIDRES 0.188380 Hz
 AQ 2.6542079 sec
 RG 322.5
 DW 81.000 usec
 DE 6.00 usec
 TE 295.7 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 1H
 P1 11.00 usec
 PL1 0 dB
 SFO1 300.1318534 MHz

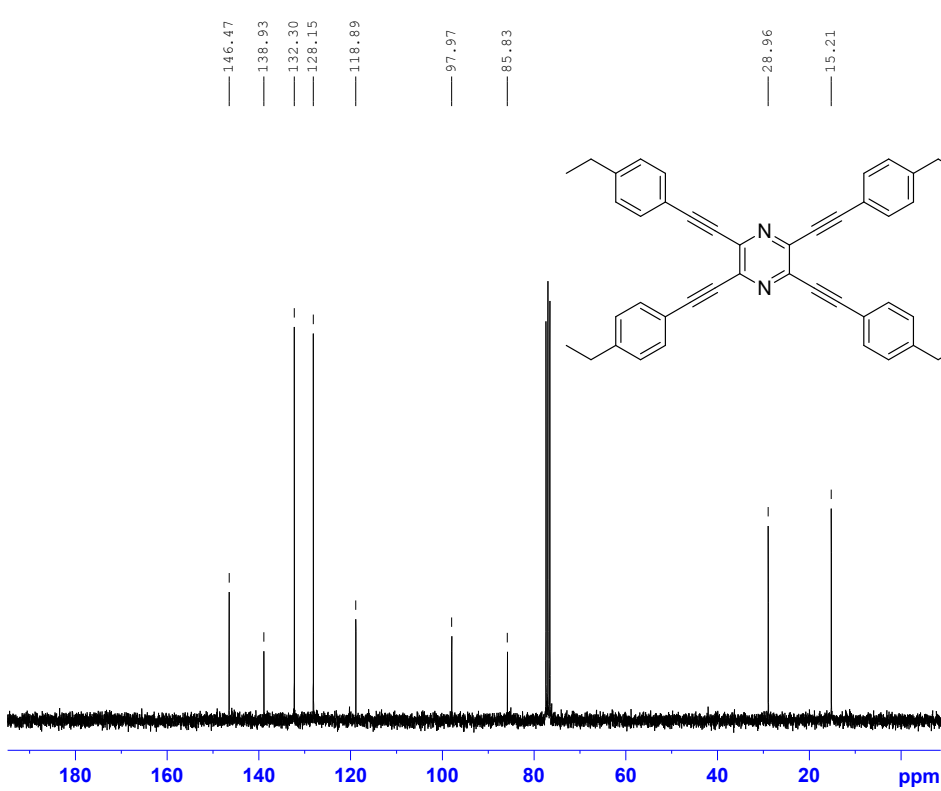
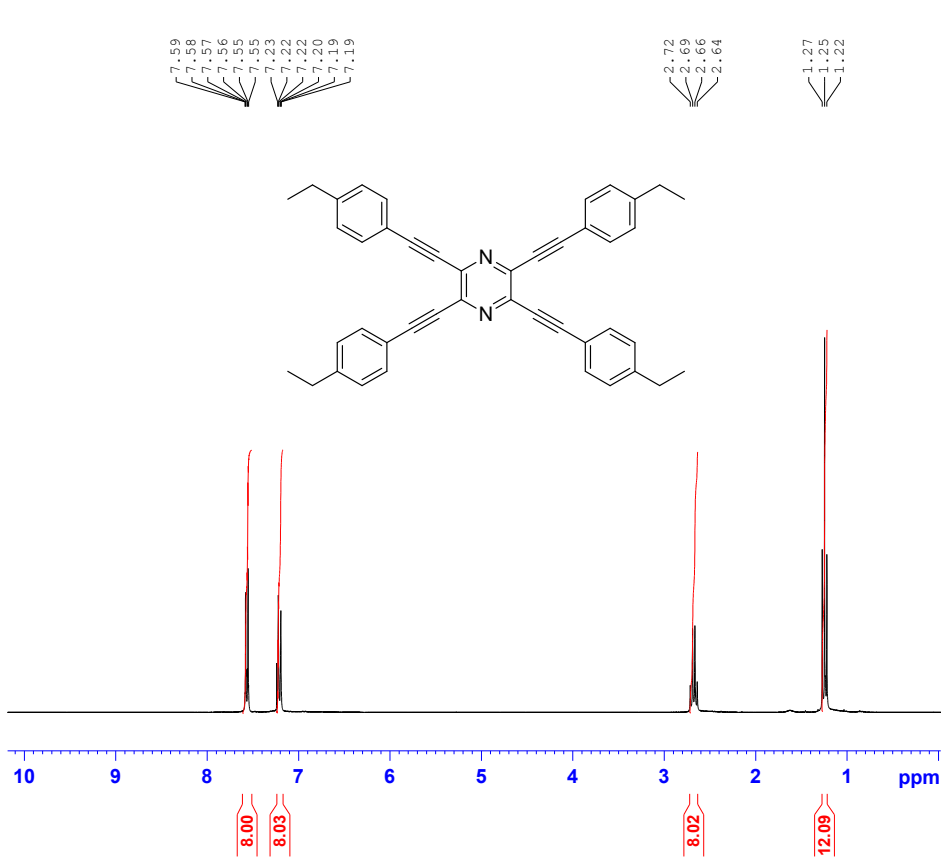
F2 - Processing parameters
 SI 32768
 SF 300.1300214 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 FC 1.00

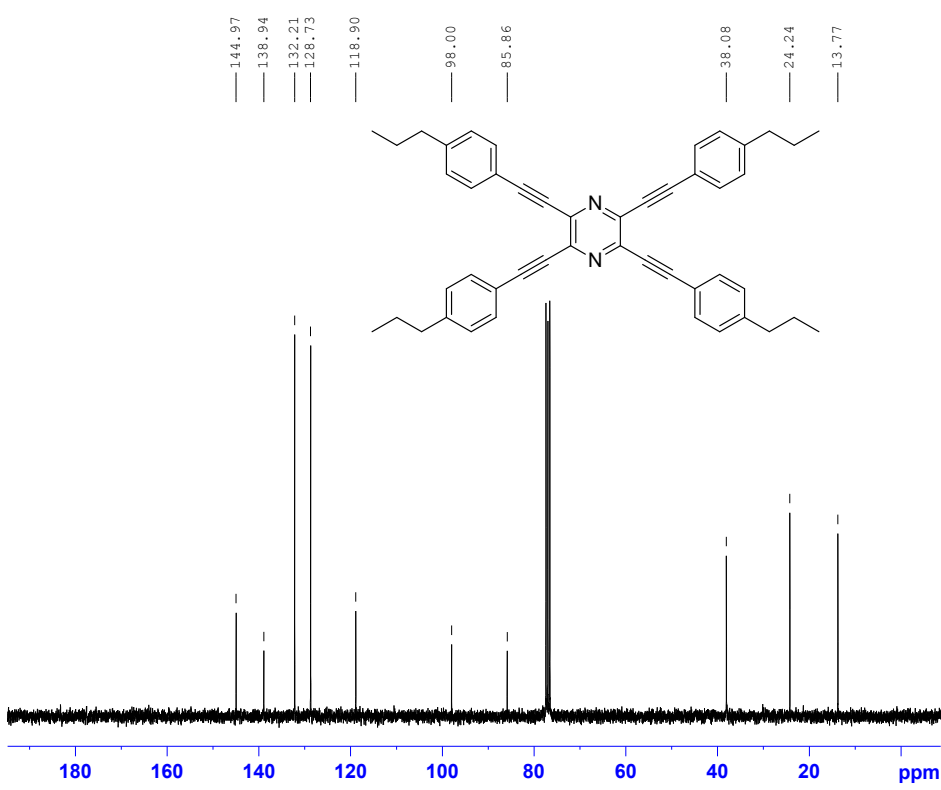
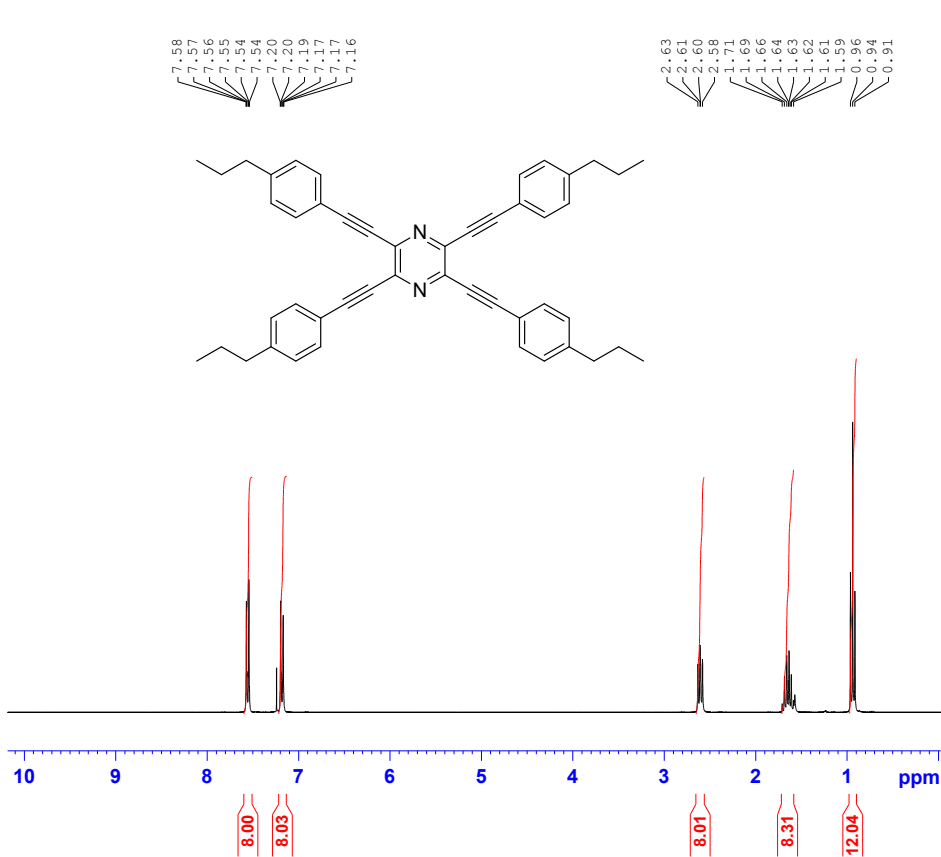


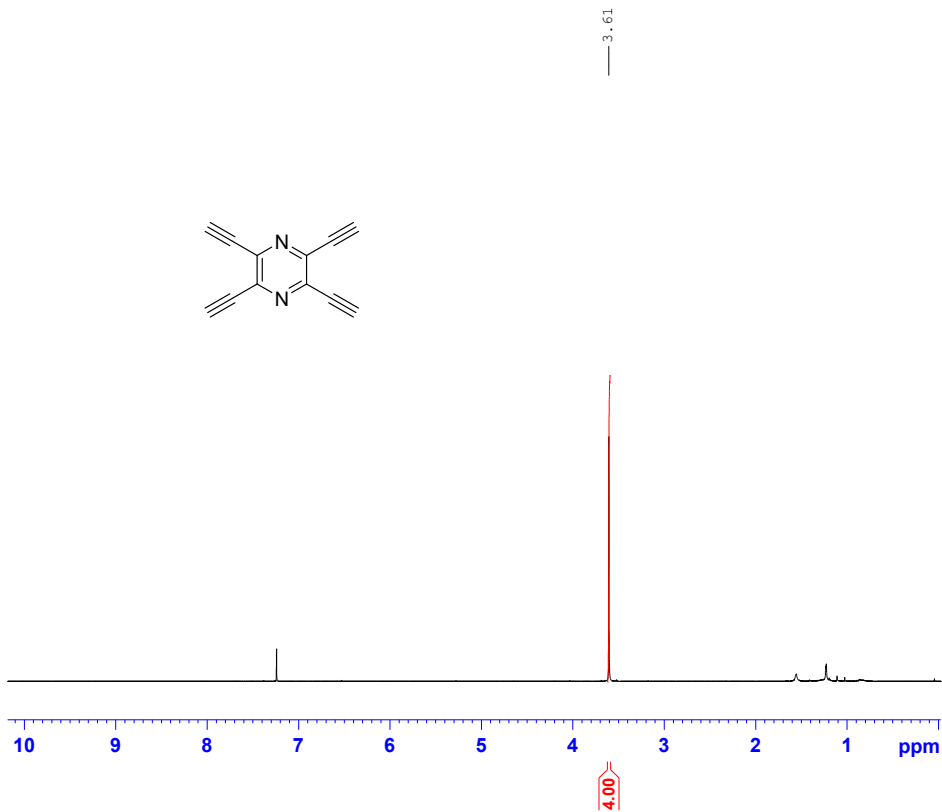
Current Data Parameters
 NAME AP-405
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20130622
 Time_ 8.05
 INSTRUM AV300
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 256
 DS 4
 SWH 21097.047 Hz
 FIDRES 0.643831 Hz
 AQ 0.7766016 sec
 RG 32768
 DW 23.700 usec
 DE 6.00 usec
 TE 296.2 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1
 SFO1 75.4771825 MHz
 NUC1 13C
 P1 9.60 usec
 PLM1 -1.00000000 W
 SFO2 300.1312005 MHz
 NUC2 1H
 CPDPRG[2] waltz16
 PCPD2 100.00 usec
 PLW2 -1.00000000 W
 PLW12 -1.00000000 W
 PLW13 -1.00000000 W

F2 - Processing parameters
 SI 32768
 SF 75.4677534 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 FC 1.40







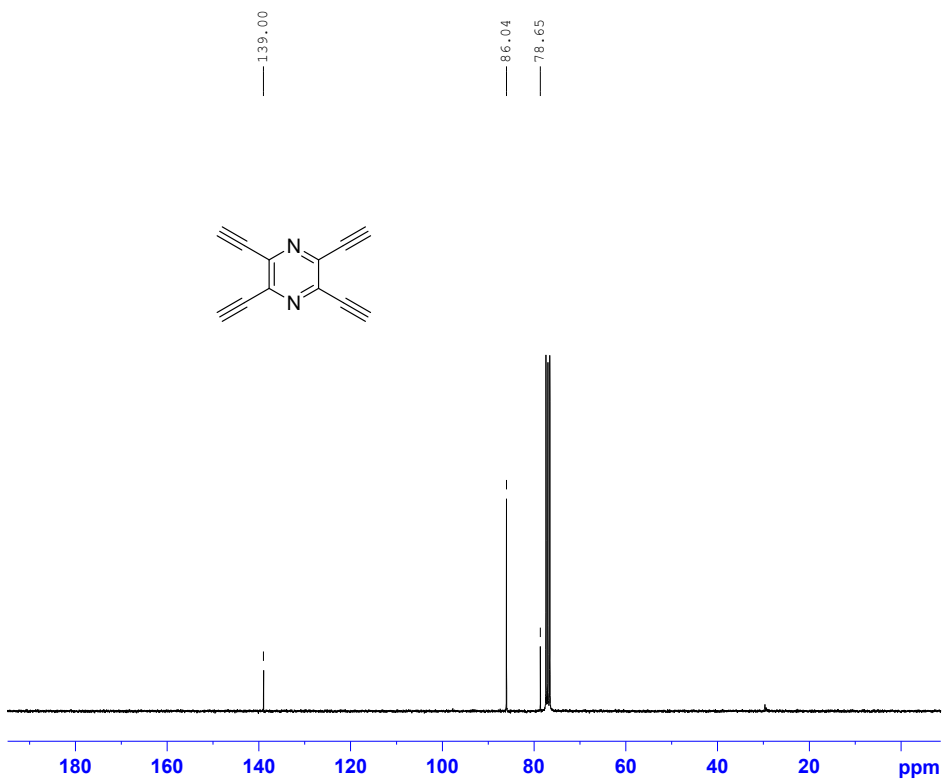
```

Current Data Parameters
NAME      AP-228
EXPNO    10
PROCNO   1

F2 - Acquisition Parameters
Date_    20121110
Time     2.04
INSTRUM  AV300
PROBHD   5 mm PABBO BB-
PULPROG  zg30
TD       32768
SOLVENT  CDC13
NS       32
DS       4
SWH      6172.839 Hz
FIDRES   0.188380 Hz
AQ       2.6542079 sec
RG       724.1
DW       81.000 usec
DE       6.00 usec
TE       294.1 K
D1       1.0000000 sec
TDO      1

===== CHANNEL f1 =====
NUC1     1H
P1       11.00 usec
PL1      0 dB
SFO1    300.1318534 MHz

F2 - Processing parameters
SI       32768
SF       300.1300214 MHz
WDW      EM
SSB      0
LB       0.10 Hz
GB       0
FC       1.00
  
```



```

Current Data Parameters
NAME      AP-228
EXPNO    13
PROCNO   1

F2 - Acquisition Parameters
Date_    20121110
Time     7.05
INSTRUM  AV300
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD       32768
SOLVENT  CDC13
NS       6000
DS       4
SWH      21097.047 Hz
FIDRES   0.643831 Hz
AQ       0.7766016 sec
RG       32768
DW       23.700 usec
DE       6.00 usec
TE       294.7 K
D1       2.0000000 sec
d11      0.0300000 sec
DELTA    1.8999999 sec
TDO      1
SFO1    75.4771825 MHz
NUC1     13C
P1       9.60 usec
PLW1    -1.0000000 W
SFO2    300.1312005 MHz
NUC2     1H
CPDPRG2  waltz16
PCPD2    100.00 usec
PLW2    -1.0000000 W
PLW12   -1.0000000 W
PLW13   -1.0000000 W

F2 - Processing parameters
SI       32768
SF       75.4677528 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
FC       1.40
  
```