The Original Coordination Chemistry of 2-Phosphaphenol with Copper (I) and Gold (I) Halides

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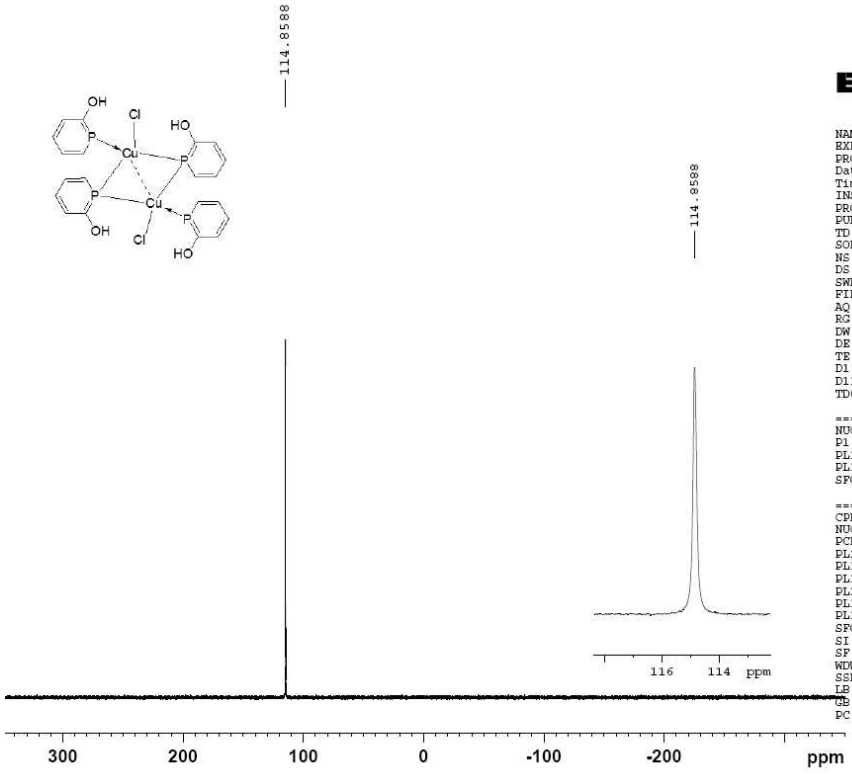
NMR spectra

M4-20121231-060-P131P CDCl3



BRUKER

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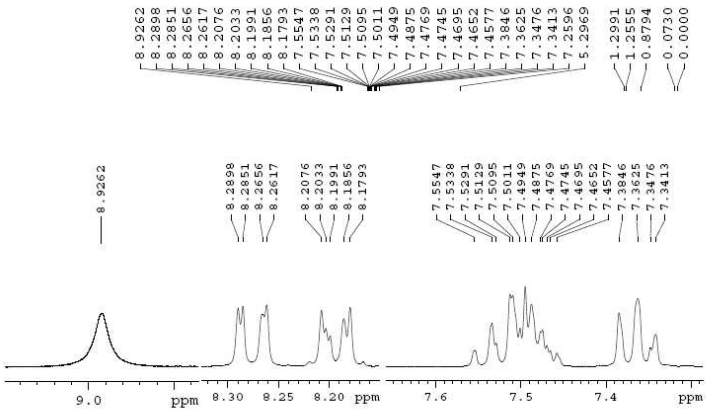
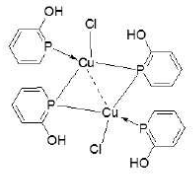
NAME          M4-20121231-060-P131P
EXPNO                             1
PROCNO                            1
Date_                      20121231
Time_                         15.31
INSTRUM                       spect
PROBHD    5 mm PABBO BB-
PULPROG                     zgpg30
TD                             65536
SOLVENT                      CDCl3
NS                                49
DS                                 4
SWH                   113636.367 Hz
FIDRES                  1.732953 Hz
AQ                      0.2884084 sec
RG                              203
DW                         4.400 usec
DE                         6.50 usec
TE                         300.0 K
D1                     2.00000000 sec
D11                    0.03000000 sec
TD0                               1

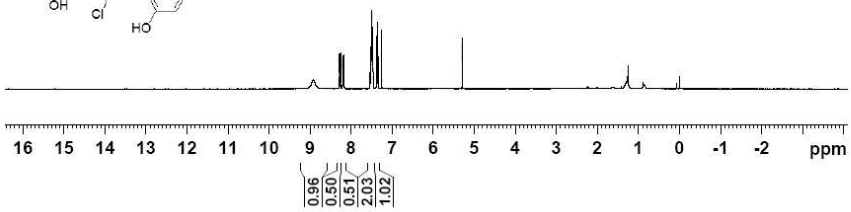
======== CHANNEL f1 ========
NUC1                          31P
P1                          9.00 usec
PL1                        -1.00 dB
PL1W                31.62277603 W
SFO1                162.0160740 MHz

======== CHANNEL f2 ========
CPDPRG2                   waltz16
NUC2                          1H
PCPD2                      80.00 usec
PL2                        -4.00 dB
PL12                       13.64 dB
PL13                       13.89 dB
PL2W                23.09303856 W
PL12W                0.39763173 W
PL13W                0.37538856 W
SFO2                400.2316009 MHz
SI                           32768
SF                  162.0160740 MHz
WDW                             EM
SSB                              0
LB                          1.00 Hz
GB                               0
PC                          1.40
```

M4-20121231-060-P11H CDCl3







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NAME          M4-20121231-060-P11H
EXPNO                             1
PROCNO                            1
Date_                      20121231
Time_                         15.28
INSTRUM                       spect
PROBHD    5 mm PABBO BB-
PULPROG                      zg30
TD                             65536
SOLVENT                      CDCl3
NS                                8
DS                                0
SWH                    8223.685 Hz
FIDRES                  0.125483 Hz
AQ                      3.9846387 sec
RG                              144
DW                         60.800 usec
DE                         6.50 usec
TE                         299.3 K
D1                     1.00000000 sec
TD0                               1

======== CHANNEL f1 ========
NUC1                          1H
P1                         10.80 usec
PL1                        -4.00 dB
PL1W                23.09303856 W
SFO1                400.2324716 MHz
SI                           32768
SF                  400.2300135 MHz
WDW                             EM
SSB                              0
LB                          0.30 Hz
GB                               0
PC                          1.00
```
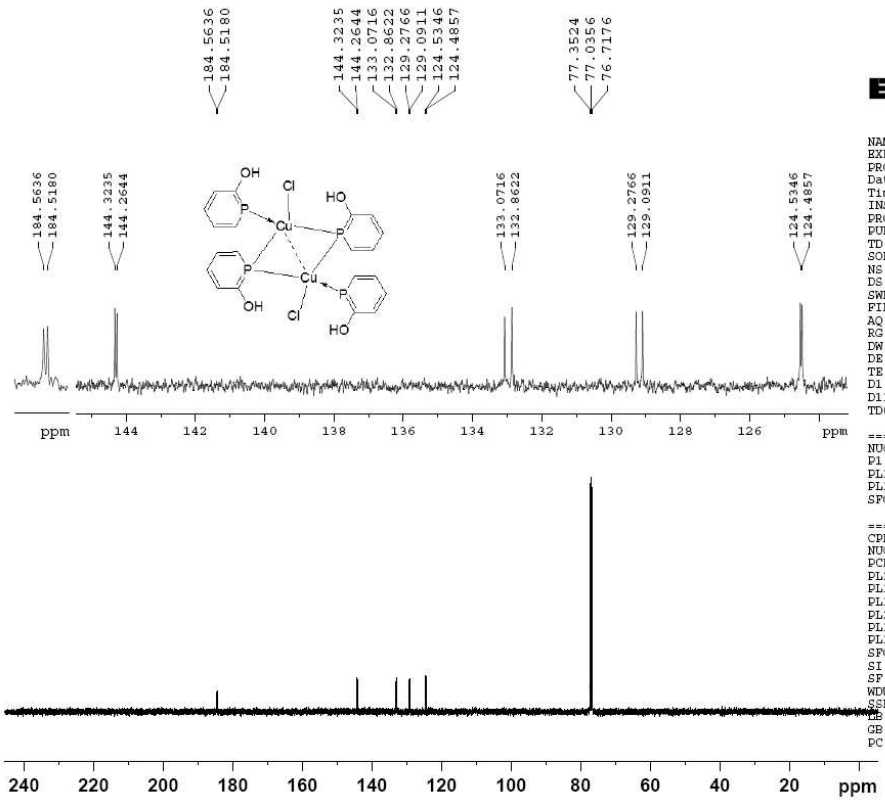
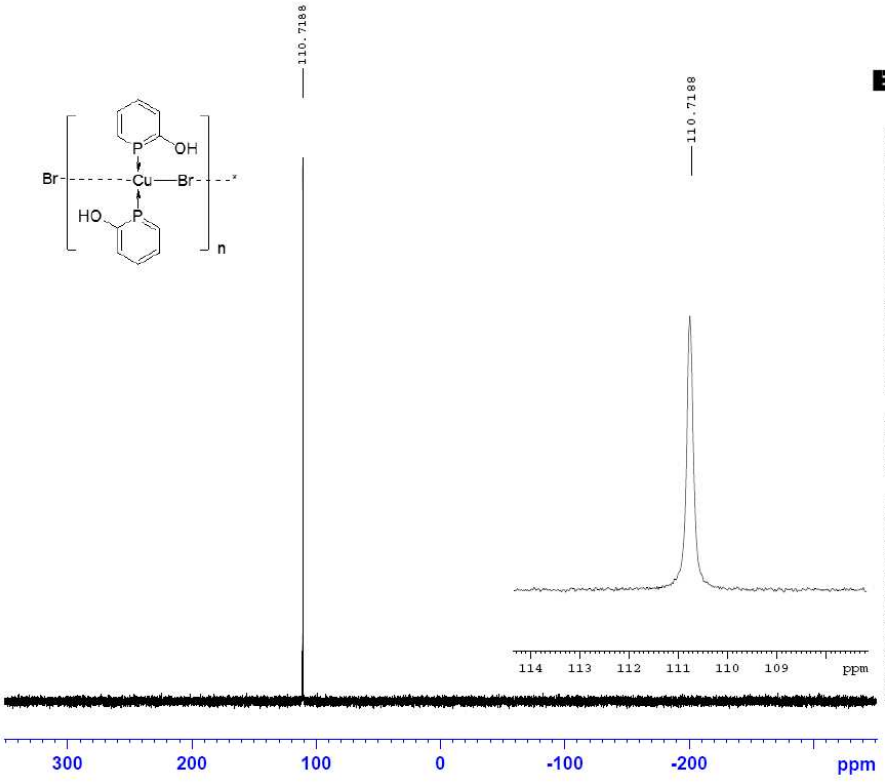

M4-20121231-060-P113C CDCl3



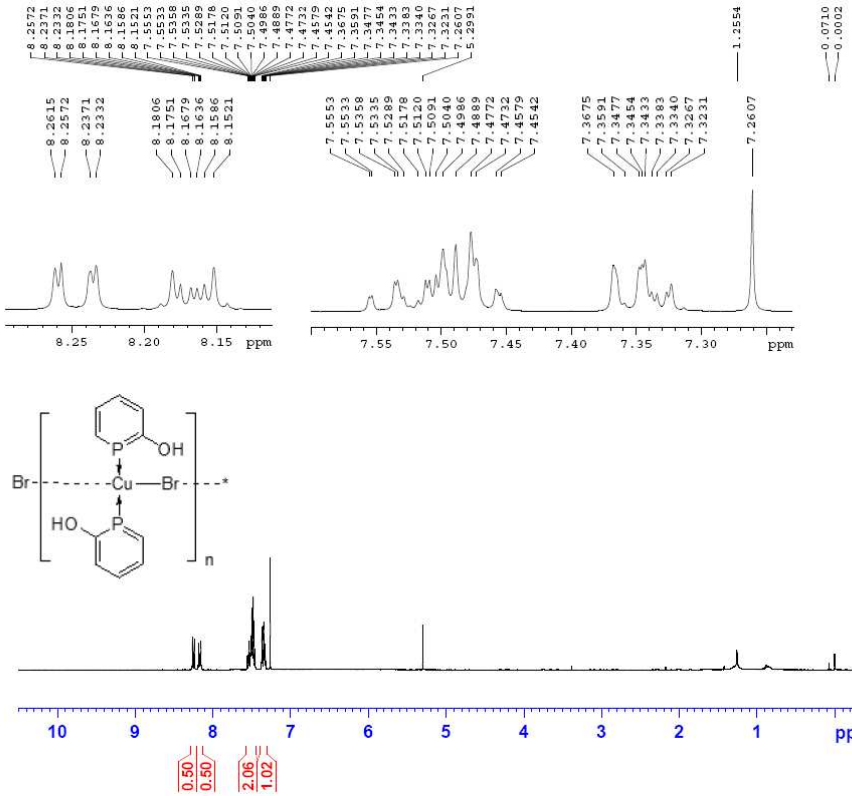

```
NAME          M4-20121231-060-P113C
EXPNO                             1
PROCNO                            1
Date_                      20121231
Time                          15.37
INSTRUM                       spect
PROBHD    5 mm PABBO BB-
PULPROG                     zgpg30
TD                           65536
SOLVENT                      CDCl3
NS                              79
DS                               4
SWH                      25252.525 Hz
FIDRES                    0.385323 Hz
AQ                        1.2976629 sec
RG                             203
DW                          19.800 usec
DE                           6.50 usec
TE                          299.6 K
D1                     2.00000000 sec
D11                    0.03000000 sec
TD0                             100

======== CHANNEL f1 ========
NUC1                           13C
P1                           9.50 usec
PL1                         -2.00 dB
PL1W                 59.71607590 W
SFO1                100.6499905 MHz

======== CHANNEL f2 ========
CPDPRG2                  waltz16
NUC2                           1H
PCPD2                       80.00 usec
PL2                         -4.00 dB
PL12                        13.64 dB
PL13                        13.89 dB
PL2W                 23.09303856 W
PL12W                 0.39763173 W
PL13W                 0.37538856 W
SFO2                400.2316009 MHz
SI                           32768
SF                  100.6379140 MHz
WDW                             EM
SSB                              0
LB                            1.00 Hz
GB                               0
PC                            1.40
```

M4-20130101-060-P131P CDCl3



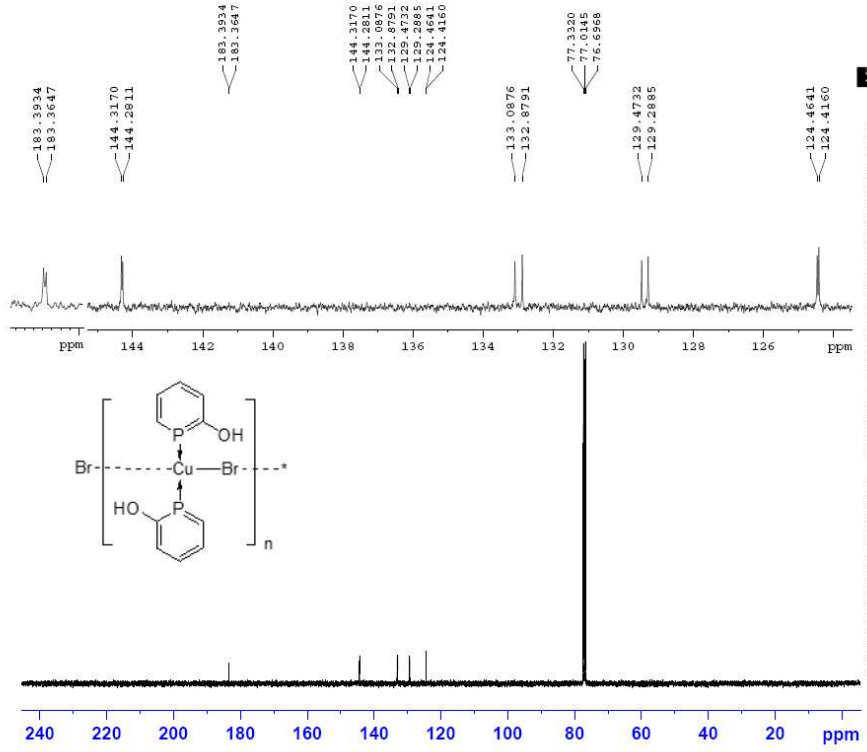

```
NAME          M4-20130101-060-P131P
EXPNO                             1
PROCNO                            1
Date_                      20130102
Time                          14.46
INSTRUM                       spect
PROBHD    5 mm PABBO BB-
PULPROG                     zgpg30
TD                           65536
SOLVENT                      CDCl3
NS                              36
DS                               2
SWH                     113636.367 Hz
FIDRES                    1.733953 Hz
AQ                        0.2884084 sec
RG                             203
DW                           4.400 usec
DE                           6.50 usec
TE                          298.0 K
D1                     2.00000000 sec
D11                    0.03000000 sec
TD0                              1

======== CHANNEL f1 ========
NUC1                           31P
P1                          12.00 usec
PL1                          1.60 dB
PL1W                 17.72556877 W
SFO1                161.9755930 MHz

======== CHANNEL f2 ========
CPDPRG2                  waltz16
NUC2                           1H
PCPD2                       75.00 usec
PL2                         -3.00 dB
PL12                        13.29 dB
PL13                        14.50 dB
PL2W                 19.59642029 W
PL12W                 0.46044394 W
PL13W                 0.34847912 W
SFO2                400.1316005 MHz
SI                           32768
SF                  161.9755930 MHz
WDW                             EM
SSB                              0
LB                            1.00 Hz
GB                               0
PC                            1.40
```

M4-20130101-060-P11H CDCl3



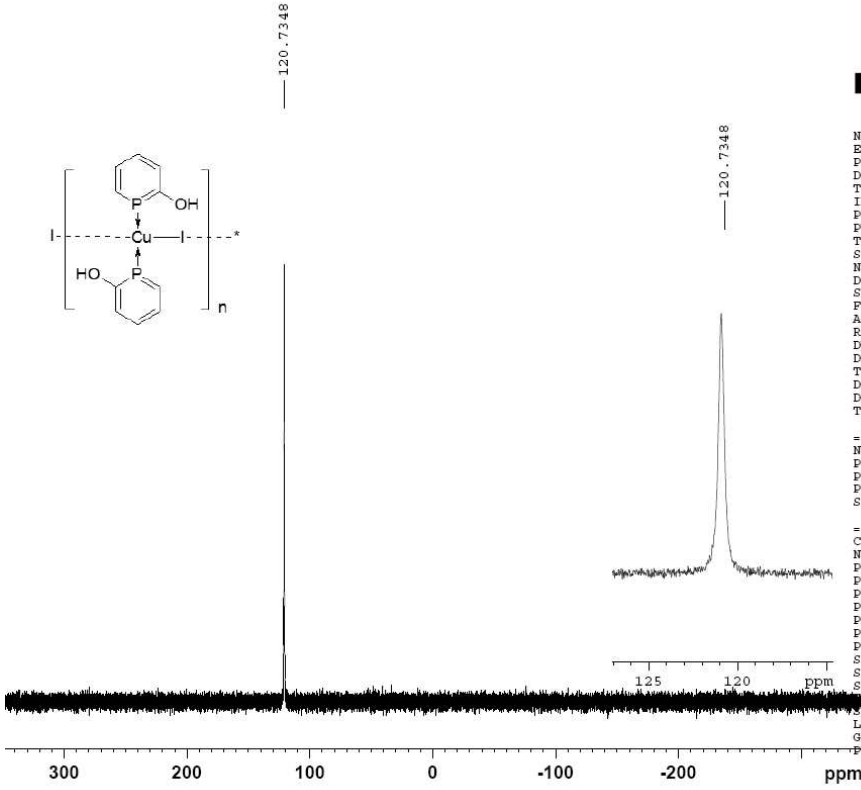

```
NAME          M4-20130101-060-P11H
EXPNO                            1
PROCNO                           1
Date_                     20130102
Time                         14.50
INSTRUM                      spect
PROBHD    5 mm PABBO BB-
PULPROG                      zg30
TD                          65536
SOLVENT                     CDCl3
NS                               8
DS                               0
SWH                   8223.685 Hz
FIDRES                0.125483 Hz
AQ                    3.9846387 sec
RG                             203
DW                        60.800 usec
DE                         6.50 usec
TE                          297.8 K
D1                    1.00000000 sec
TD0                              1

======== CHANNEL f1 ========
NUC1                          1H
P1                         11.50 usec
PL1                        -3.00 dB
PL1W                19.59642029 W
SFO1               400.1324710 MHz
SI                           32768
SF                 400.1300094 MHz
WDW                             EM
SSB                              0
LB                            0.30 Hz
GB                               0
PC                            1.00
```

M4-20130101-060-P113C CDCl3




```
NAME          M4-20130101-060-P113C
EXPNO                            1
PROCNO                           1
Date_                     20130102
Time                         14.56
INSTRUM                      spect
PROBHD    5 mm PABBO BB-
PULPROG                    zgpg30
TD                          65536
SOLVENT                     CDCl3
NS                             198
DS                               0
SWH                25252.525 Hz
FIDRES                0.385323 Hz
AQ                    1.2976629 sec
RG                             203
DW                        19.800 usec
DE                         6.50 usec
TE                          298.7 K
D1                    2.00000000 sec
D11                   0.03000000 sec
TD0                            100

======== CHANNEL f1 ========
NUC1                         13C
P1                         9.00 usec
PL1                        -2.60 dB
PL1W                65.36360931 W
SFO1               100.6248425 MHz

======== CHANNEL f2 ========
CPDPRG2                  waltz16
NUC2                          1H
PCPD2                     75.00 usec
PL2                        -3.00 dB
PL12                       13.29 dB
PL13                       14.50 dB
PL2W                19.59642029 W
PL12W                0.46044394 W
PL13W                0.34847912 W
SFO2               400.1316005 MHz
SI                           32768
SF                 100.6127690 MHz
WDW                             EM
SSB                              0
LB                            1.00 Hz
GB                               0
PC                            1.40
```

M3-20110825-73-P131P CDCl3



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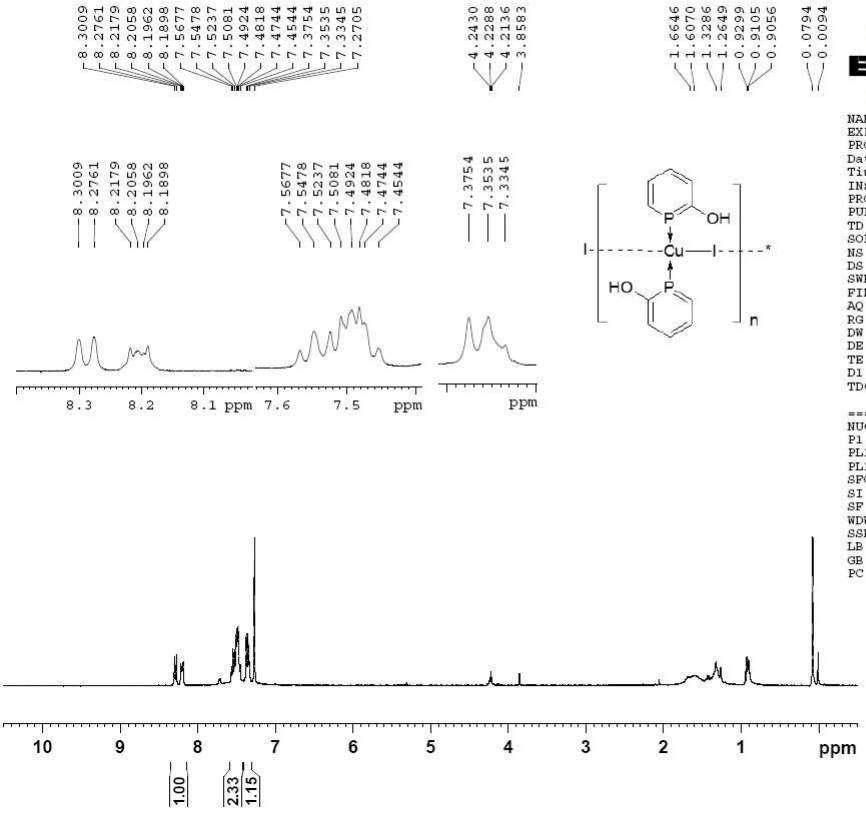
```
NAME          M3-20110825-73-P131P
EXPNO                            1
PROCNO                           1
Date_                     20110825
Time                         16.03
INSTRUM                      spect
PROBHD    5 mm PABBO BB-
PULPROG                    zgpg30
TD                            65536
SOLVENT                     CDCl3
NS                              100
DS                                4
SWH                     113636.367 Hz
FIDRES                    1.733953 Hz
AQ                        0.2884084 sec
RG                              203
DW                          4.400 usec
DE                          6.50 usec
TE                          295.2 K
D1                     2.00000000 sec
D11                    0.03000000 sec
TD0                              1

======== CHANNEL f1 ========
NUC1                           31P
P1                           9.00 usec
PL1                         -1.00 dB
PL1W                  31.62277603 W
SFO1                  162.0160740 MHz

======== CHANNEL f2 ========
CPDPRG2                   waltz16
NUC2                           1H
PCPD2                       80.00 usec
PL2                         -4.00 dB
PL12                        13.64 dB
PL13                        13.89 dB
PL2W                  23.09303856 W
PL12W                  0.39763173 W
PL13W                  0.37538856 W
SFO2                  400.2316009 MHz
SI                           32768
SF                    162.0160740 MHz
WDW                             EM
SSB                              0
LB                            1.00 Hz
GB                               0
PC                            1.40
```

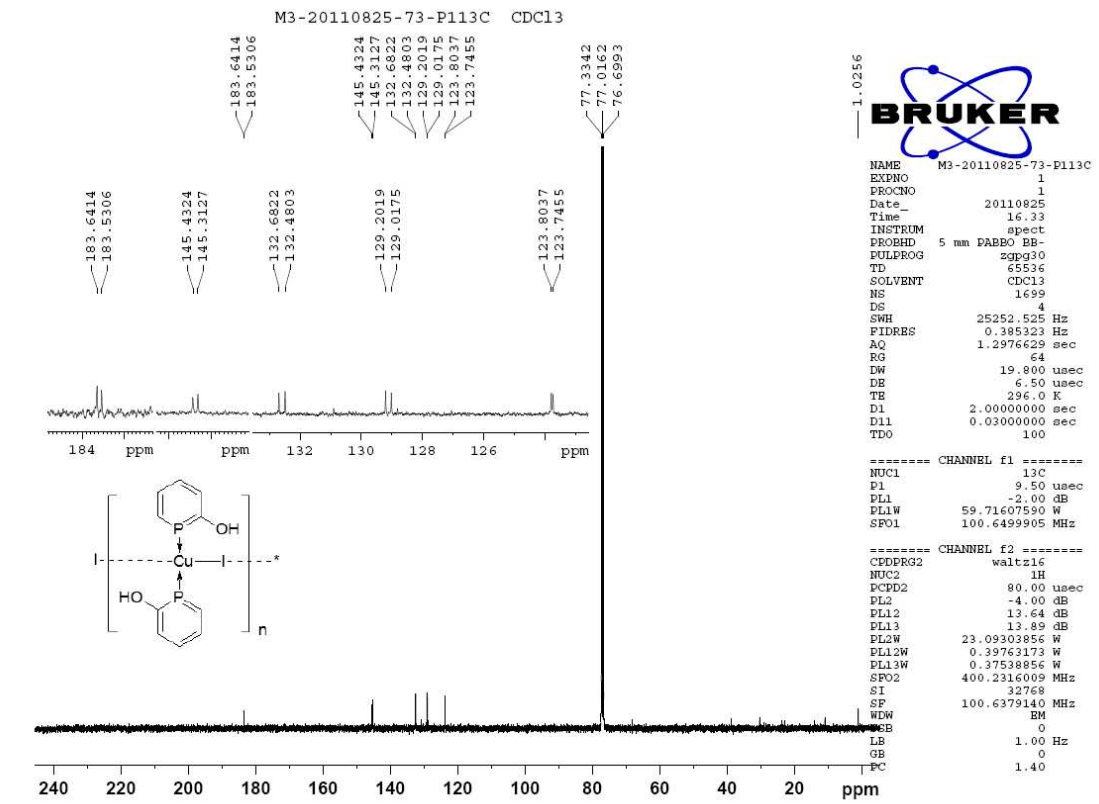
M3-20110825-73-P11H CDCl3

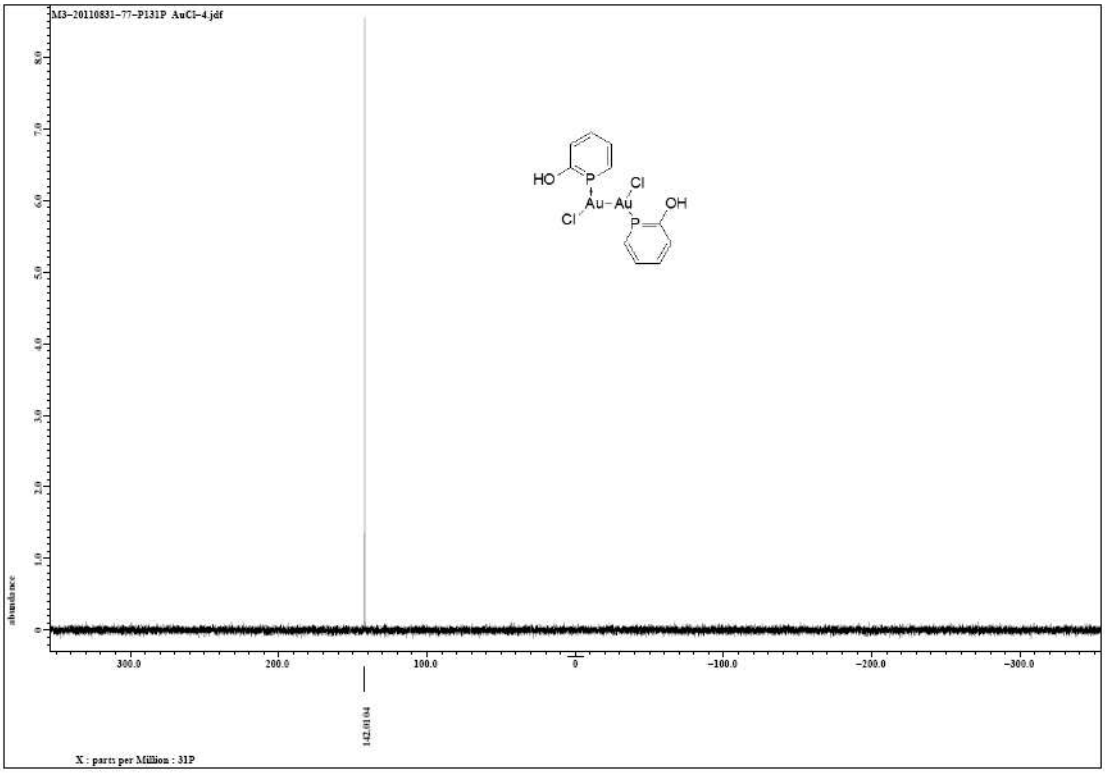


BRUKER

```
NAME          M3-20110825-73-P11H
EXPNO                            1
PROCNO                           1
Date_                     20110825
Time                         16.30
INSTRUM                      spect
PROBHD    5 mm PABBO BB-
PULPROG                     zg30
TD                            65536
SOLVENT                     CDCl3
NS                                8
DS                                0
SWH                      8223.685 Hz
FIDRES                    0.125483 Hz
AQ                        3.9846387 sec
RG                              161
DW                          60.800 usec
DE                          6.50 usec
TE                          295.2 K
D1                     1.00000000 sec
TD0                              1

======== CHANNEL f1 ========
NUC1                           1H
P1                          10.80 usec
PL1                         -4.00 dB
PL1W                  23.09303856 W
SFO1                  400.2324716 MHz
SI                           32768
SF                    400.2300087 MHz
WDW                             EM
SSB                              0
LB                            0.30 Hz
GB                               0
PC                            1.00
```


M3-20110825-73-P113C CDCl3
183.6414
183.5306
145.4324
145.3127
132.6822
132.4803
129.2019
129.0175
123.8037
123.7455
77.3342
77.0162
76.6993
1.0256
BRUKER
NAME M3-20110825-73-P113C
EXPNO 1
PROCNO 1
Date_ 20110825
Time 16.33
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1699
DS 4
SWH 25252.525 Hz
FIDRES 0.385323 Hz
AQ 1.2976629 sec
RG 64
DW 19.800 usec
DE 6.50 usec
TE 296.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 100
======== CHANNEL f1 ========
NUC1 13C
P1 9.50 usec
PL1 -2.00 dB
PL1W 59.71607590 W
SFO1 100.6499905 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -4.00 dB
PL12 13.64 dB
PL13 13.89 dB
PL2W 23.09303856 W
PL12W 0.39763173 W
PL13W 0.37538856 W
SFO2 400.2316009 MHz
SI 32768
SF 100.6379140 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
OH
Cu
HO
n
ppm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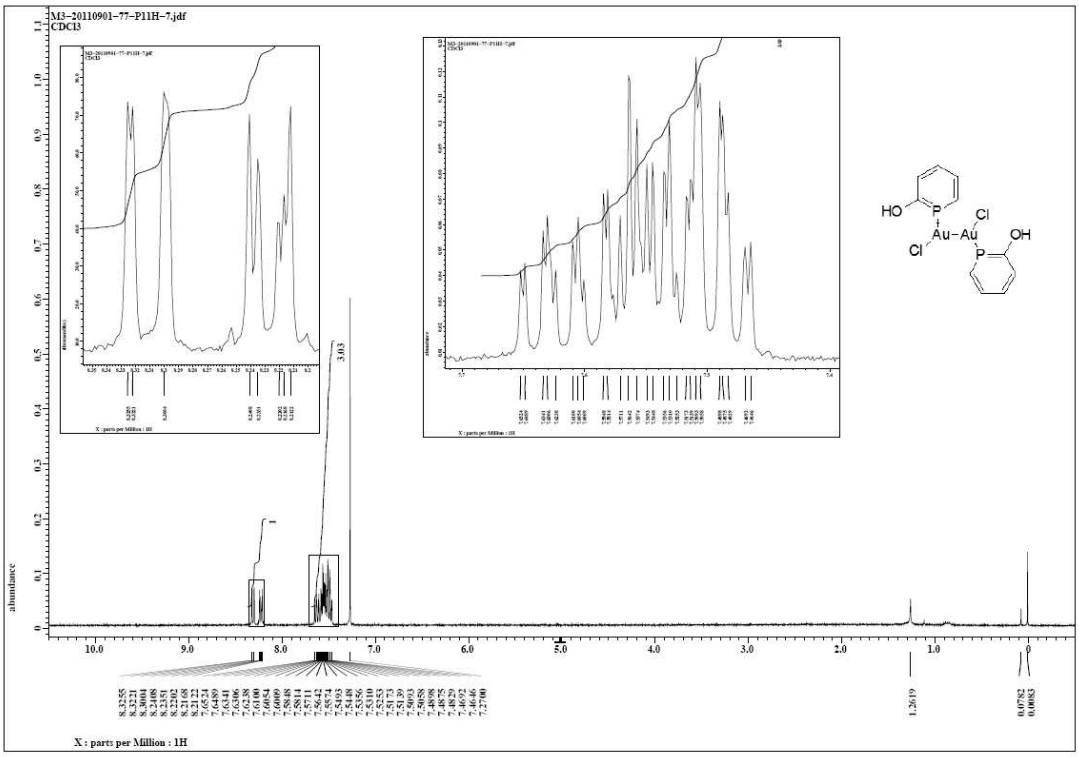
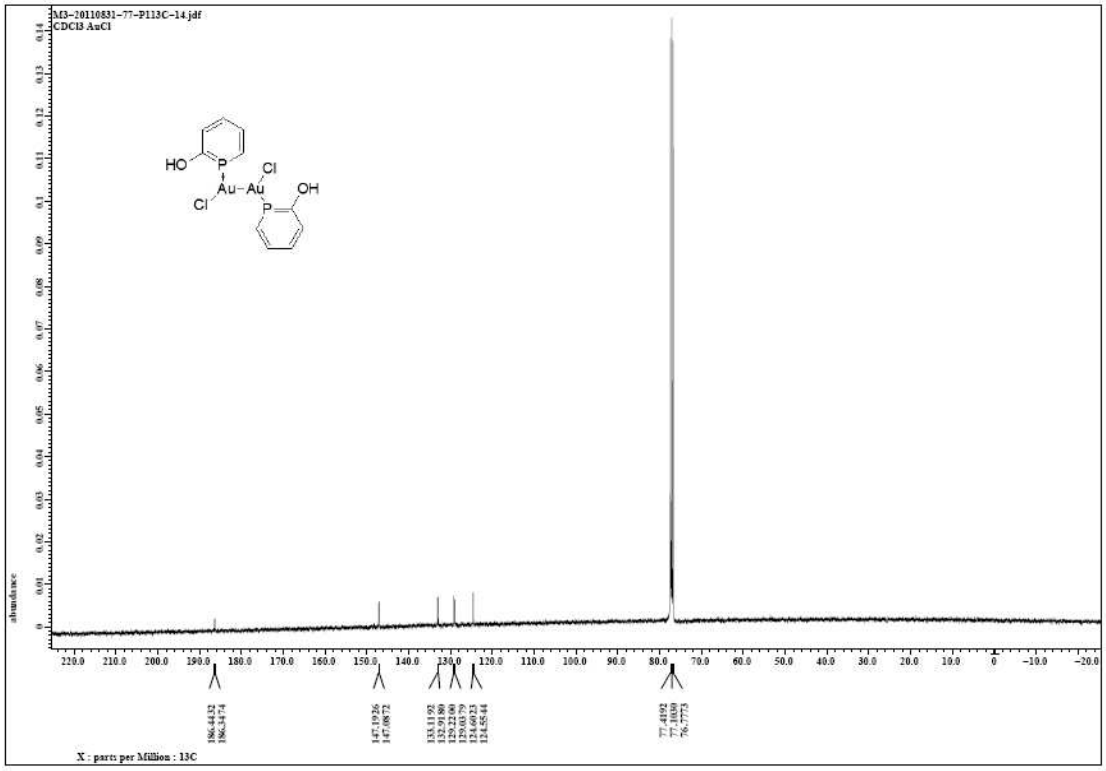
HO
Cl
Au
OH
abundance
142.0104
X : parts per Million : 31P


M3-20110901-77-P11H-7.jdf
CDCl3
HO
P
Au-Au
Cl
OH
abundance
X : parts per Million : 1H


M3-20110831-77-P113C-14.jdf
CDCl3 AuCl
HO
P
Au-Au
Cl
OH
abundance
X : parts per Million : 13C