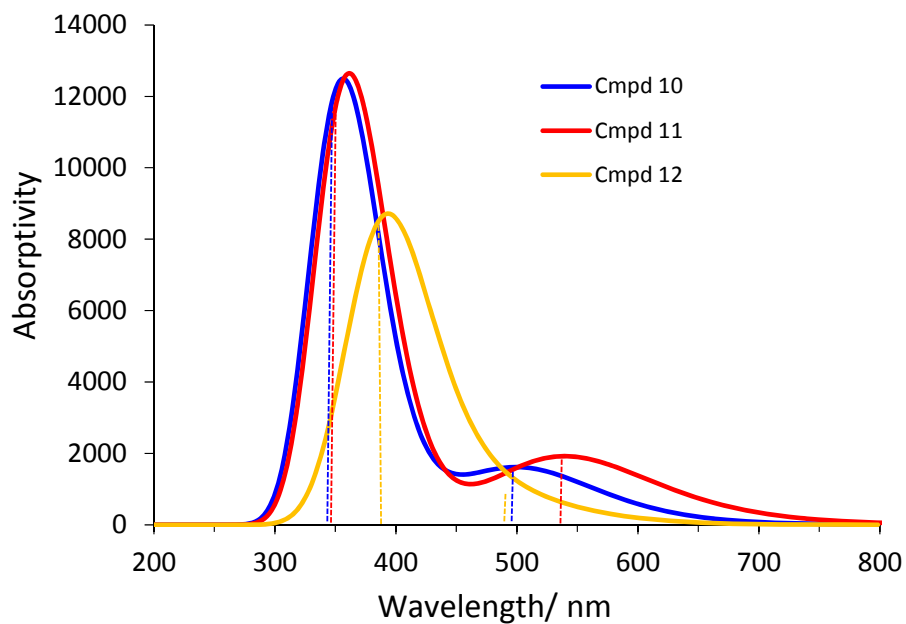


Supporting Information For

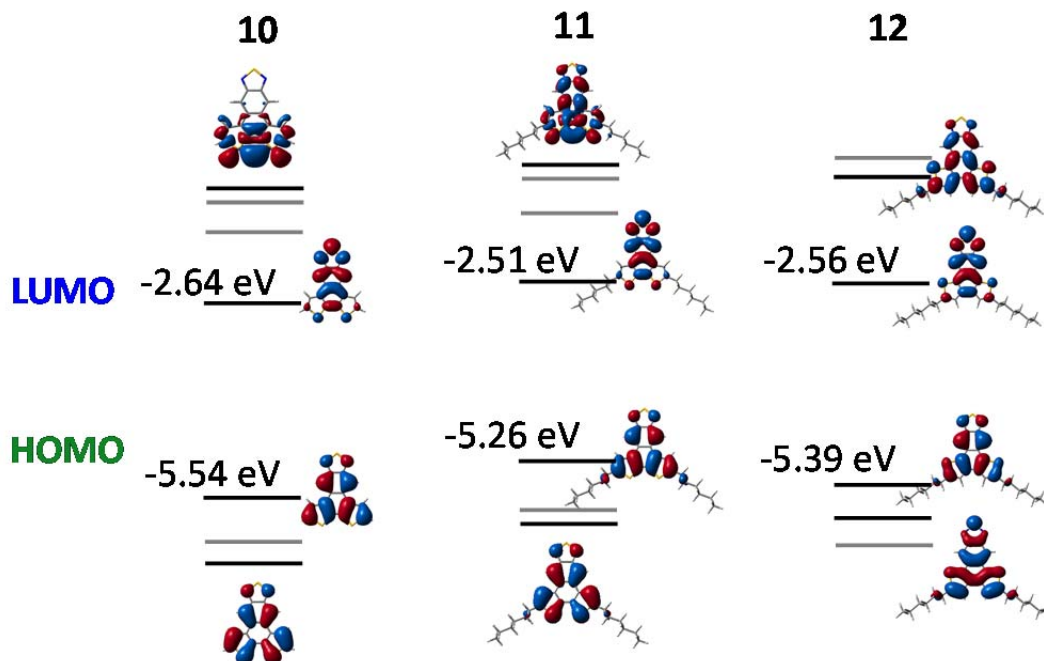
*Dithienonaphthothiadiazole Semiconductors:
Synthesis, Properties, and Application to Ambipolar Field Effect Transistors*

Q. Shuai, H. T. Black, A. Dadvand and D. F. Perepichka

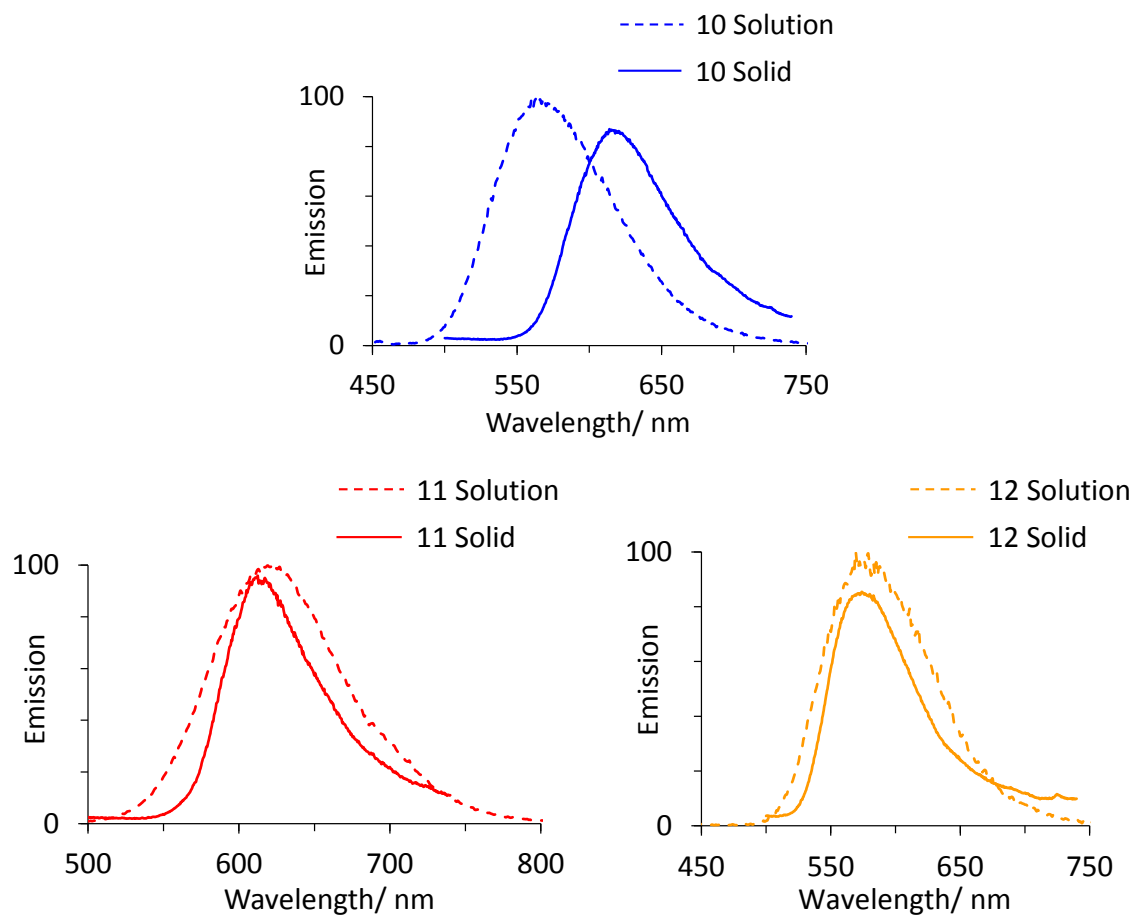
Department of Chemistry and Centre for Self-Assembled Chemical Structures, McGill University,
Montreal, Qc H3A OK8, Canada.



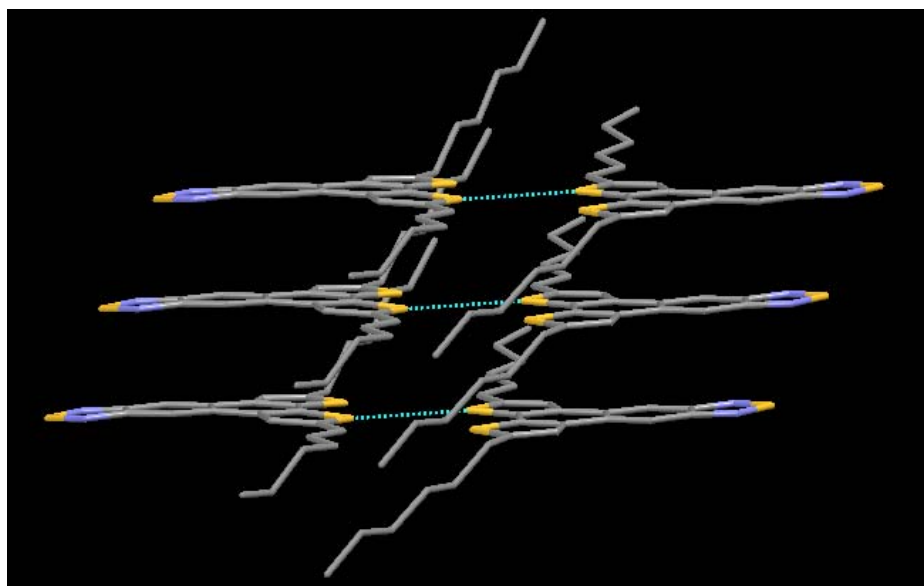
DFT (B3LYP, 6-31G (d)) calculated UV/vis spectra for **10-12**. Vertical lines indicate the position of calculated transition.



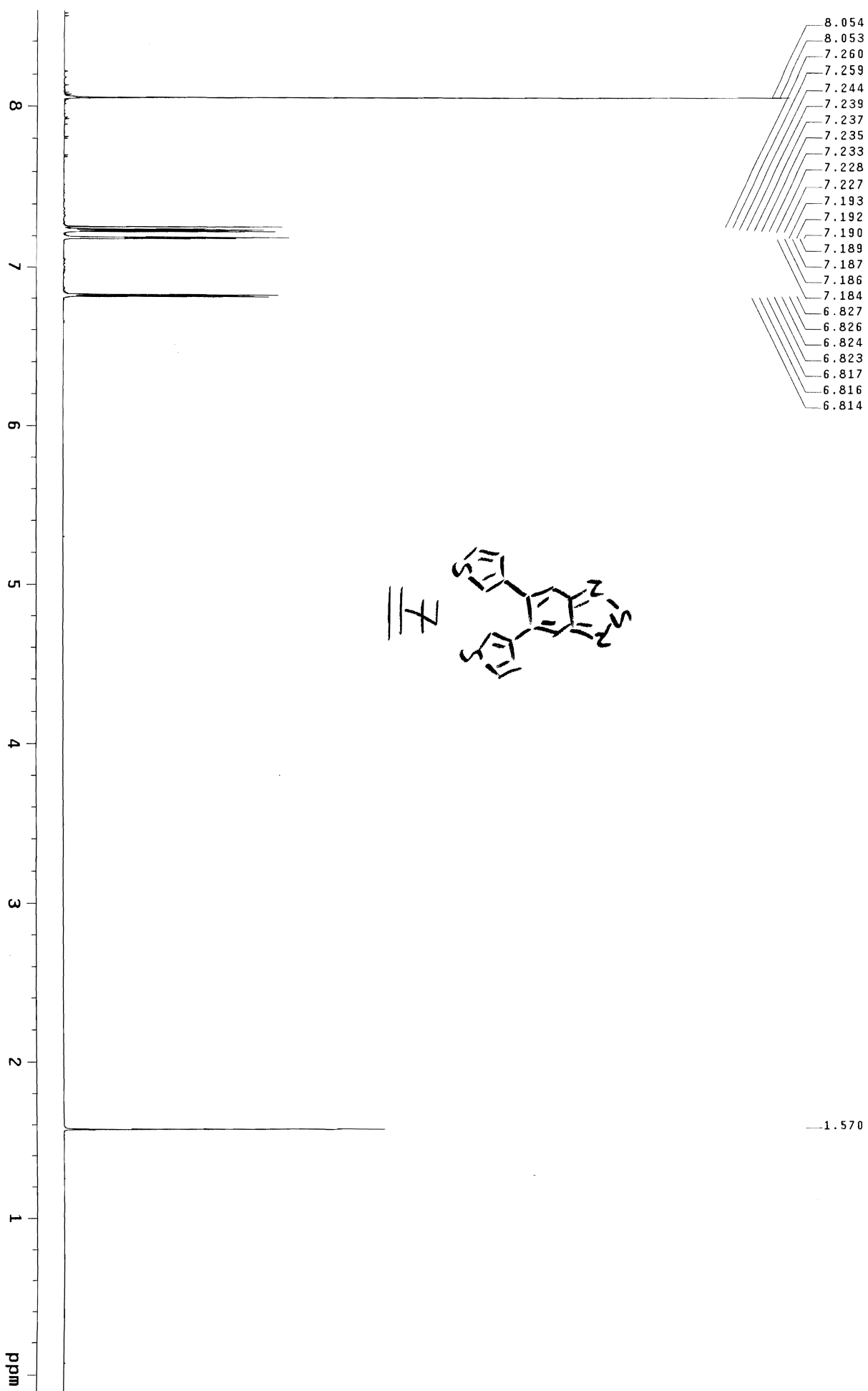
DFT (B3LYP, 6-31G (d)) calculated energy diagram showing the orbital surfaces that participate in the calculated transitions. Bold lines indicate the orbital shown.

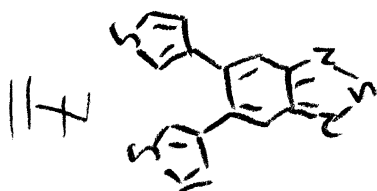
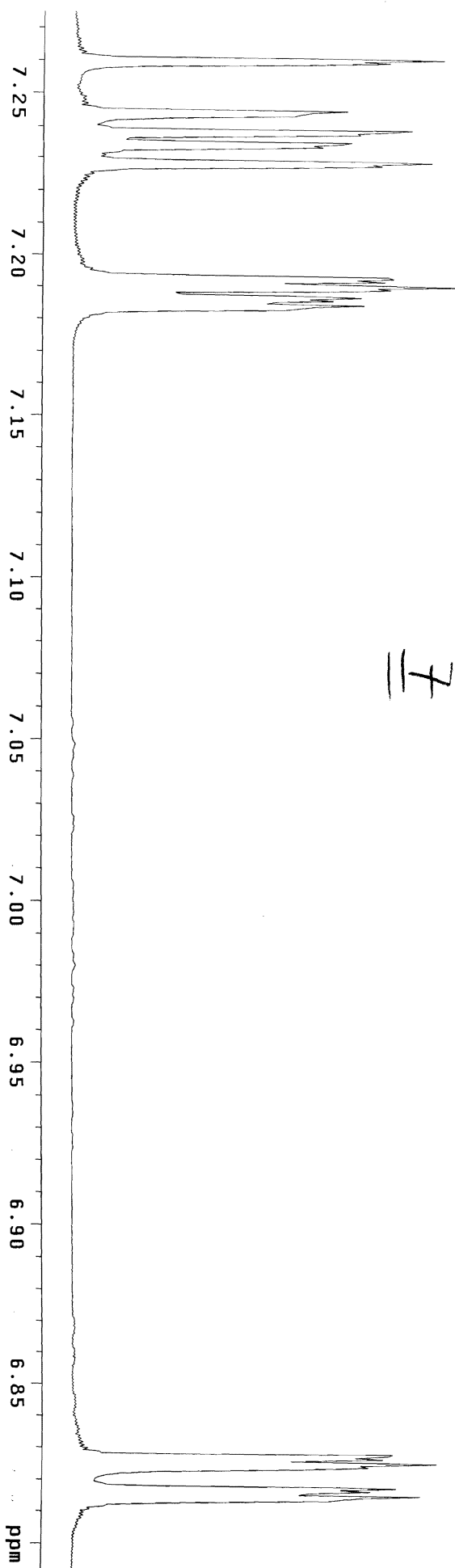


Solution and solid state fluorescence for **10-12**.



Molecular packing in single crystal of **11**, showing S...S interactions between π -stacks.



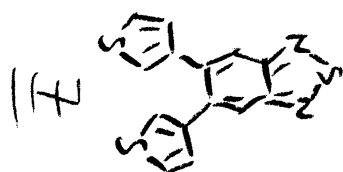


7.260
7.259
7.244
7.239
7.237
7.235
7.233
7.228
7.227

7.193
7.192
7.190
7.189
7.187
7.186
7.184

6.827
6.826
6.824
6.823
6.817
6.816
6.814

200 180 160 140 120 100 80 60 40 20 ppm

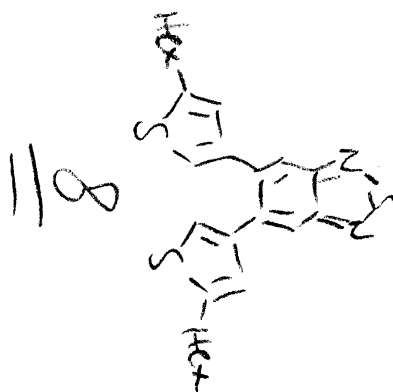


154.647

141.050
138.766

129.081
125.654
124.436
121.623

77.615
77.360
77.108



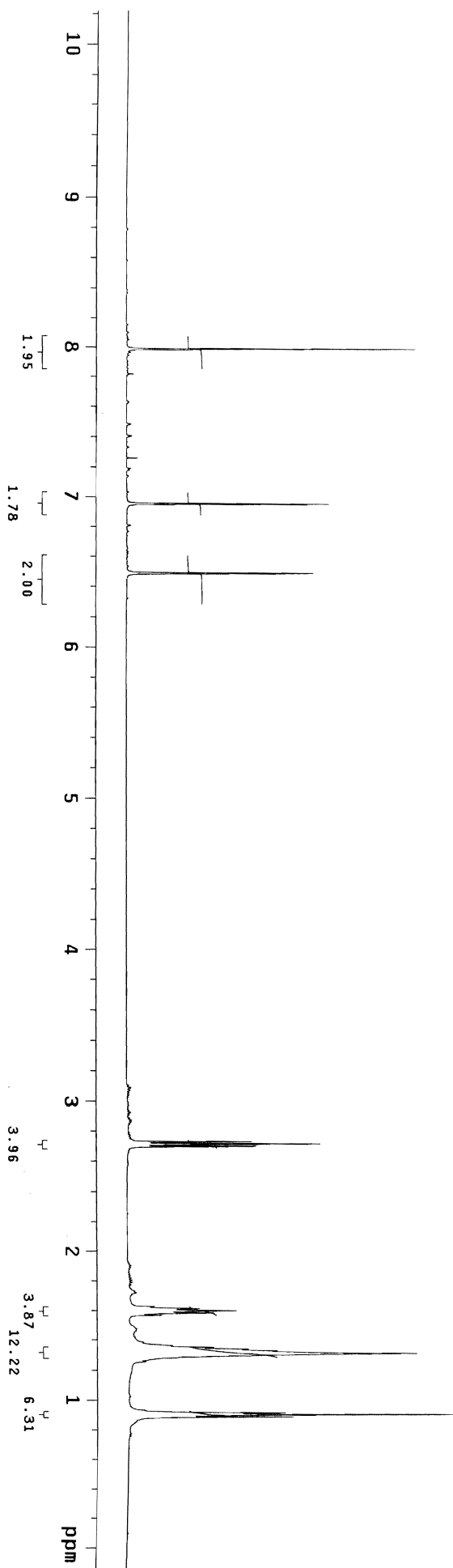
7.987
7.986
7.983

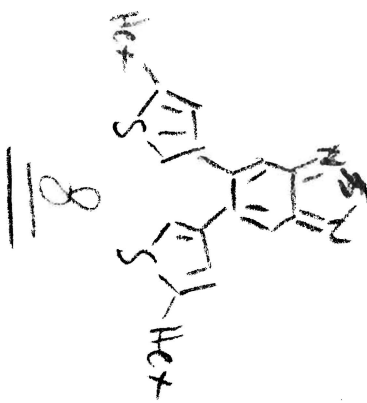
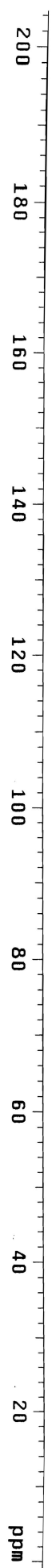
6.955
6.953
6.952
6.950

6.490
6.489

2.726
2.711
2.696

1.611
1.597
1.582
1.347
1.335
1.324
1.306
0.912
0.899
0.898
0.885





154.569

145.780

140.639
139.173

126.090

121.805
121.057

77.615
77.360
77.105

31.934
31.890
30.243
29.022

22.882

14.425

8.054

7.260

6.769

6.762

6.667

6.660

2.807

2.791

2.776

1.677

1.662

1.646

1.596

1.370

1.354

1.323

1.315

1.309

1.301

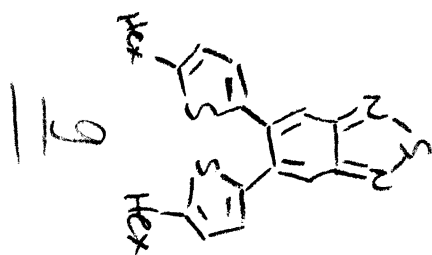
1.294

0.913

0.910

0.899

0.885



1.72

2.00

1.96

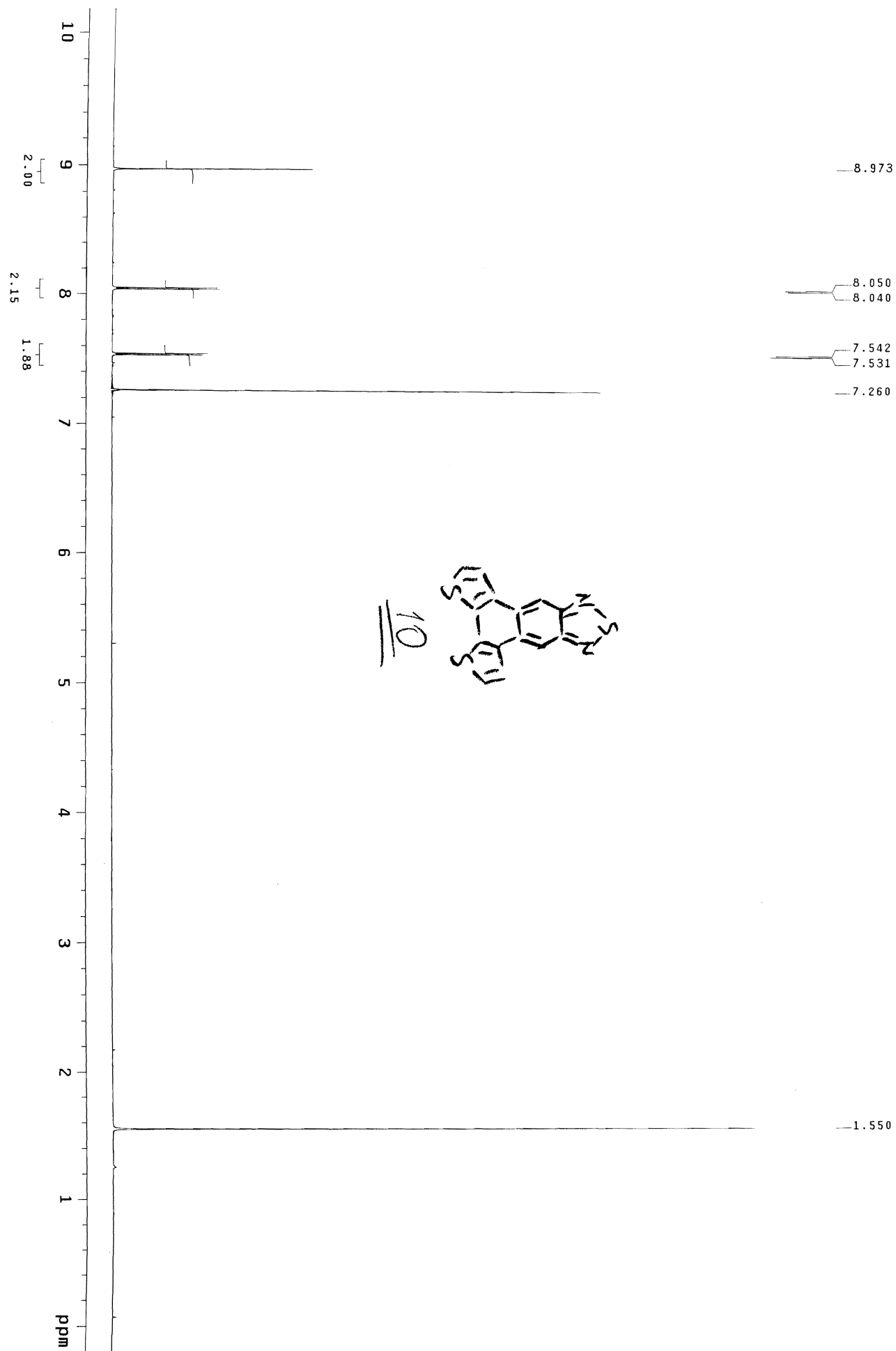
4.19

4.24

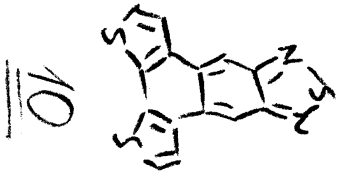
12.08

6.01

ppm



220
200
180
160
140
120
100
80
60
40
20
0
ppm

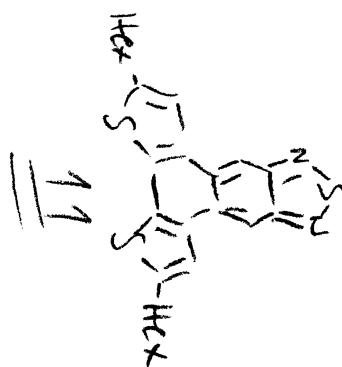


- 152.864
- 134.129
- 133.589
- 130.732
- 124.585
- 124.055
- 115.277
- 77.612
- 77.360
- 77.105

8.703

7.547

7.260



2.982
2.967
2.952

1.837
1.822
1.807
1.792
1.776
1.590
1.480
1.466
1.455
1.450
1.436
1.387
1.379
1.371
1.365
1.357
1.350
1.332
0.933
0.920
0.905

10

9

2.00

8

2.06

7

6

5

4

3

4.22

2

4.24

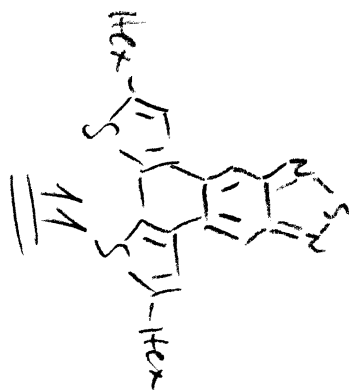
1

4.31
8.32

5.93

ppm

200
180
160
140
120
100
80
60
40
20
ppm



—152.515

—144.910

—133.070

—132.038

—130.395

—120.543

—114.666

—77.615

—77.360

—77.108

—31.953

—31.831

—30.980

—29.185

—22.949

—14.455

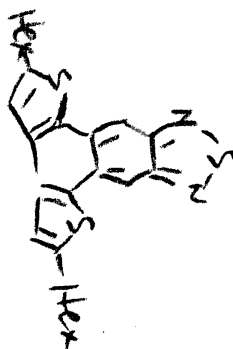
—8.633

—7.317

5.302
5.301
5.300
5.299
5.298

3.015
2.999
2.984

1.847
1.832
1.817
1.801
1.786
1.490
1.465
1.451
1.440
1.436
1.372
1.366
1.360
1.354
1.347
1.340
1.337
1.333
1.327
1.325
0.908
0.895
0.880



10

9

8

7

6

5

4

3

2

1

ppm

1.57

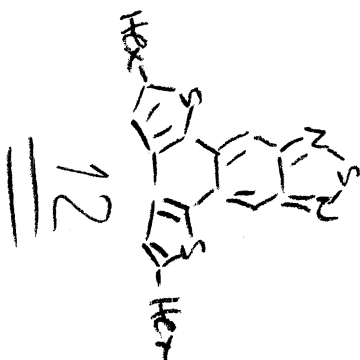
2.26

4.67

4.73
4.25
8.21

6.00

200
180
160
140
120
100
80
60
40
20
ppm



152.771
148.637

134.747
133.107
130.121

120.994
113.974

77.615
77.360
77.105

31.946
31.835
31.146
29.166

22.937

14.447