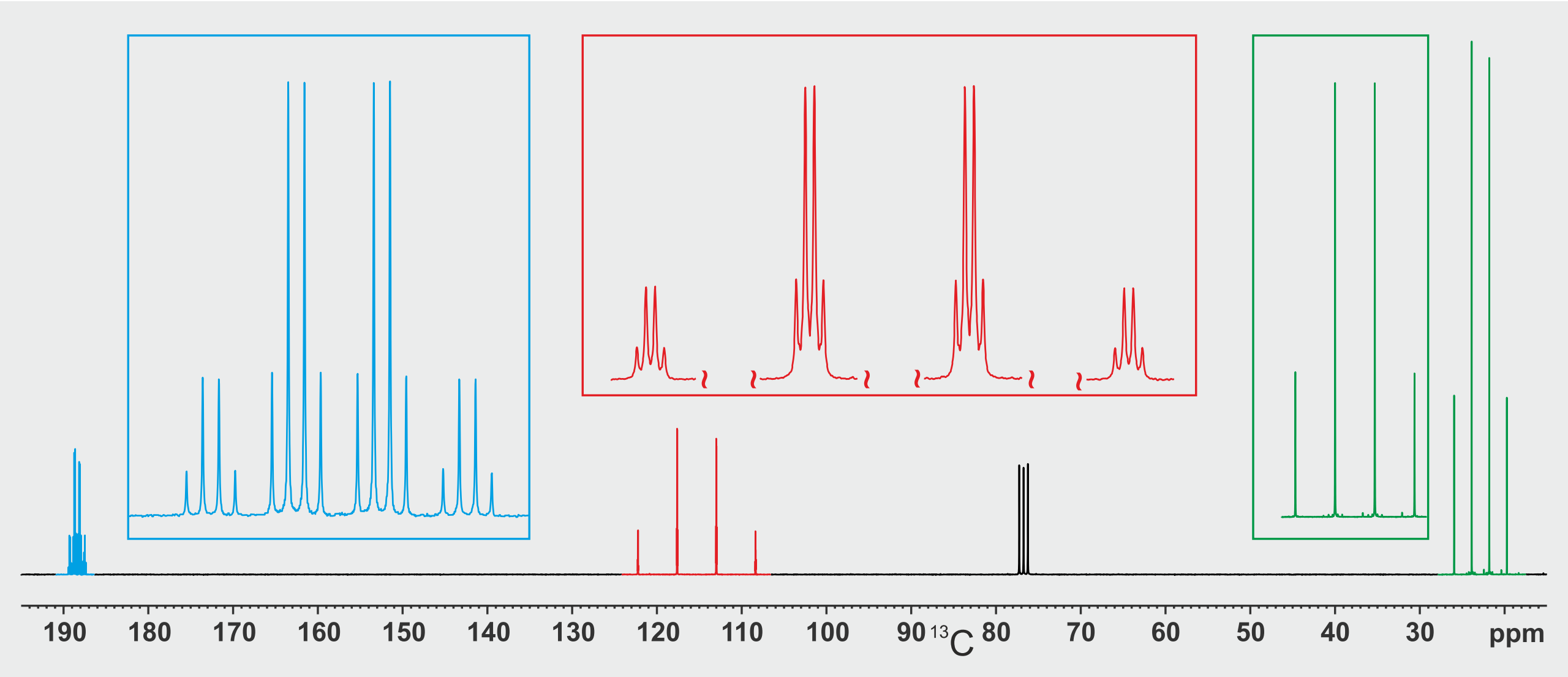
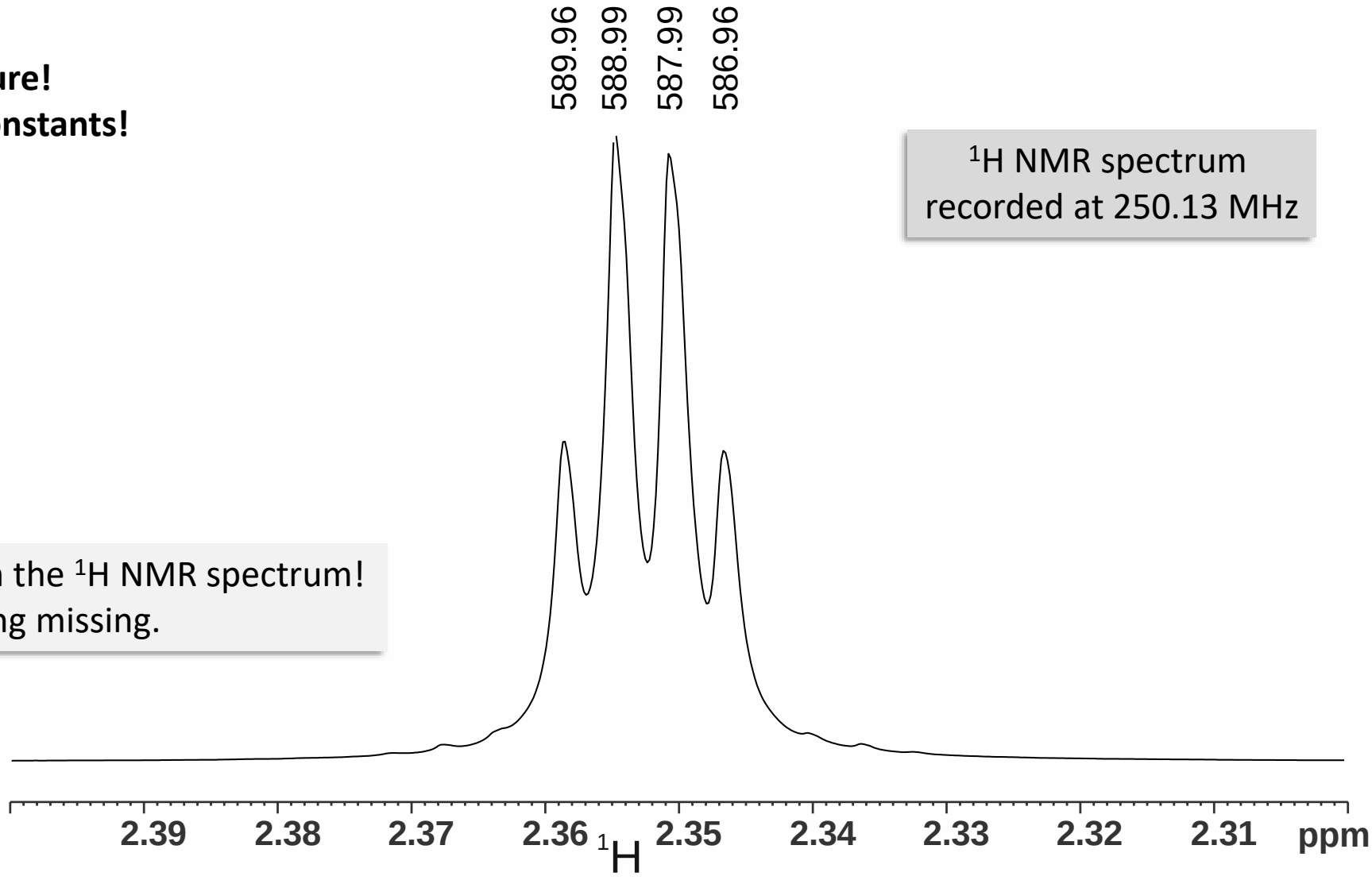
Exercise plus Solution – Quick overview

It is recommended to use this version only for a quick overview of the NMR challenge. All animations of the PowerPoint version are missing, under certain circumstances quality deficiencies may also occur.
The higher quality PowerPoint files are freely available for download at any time.



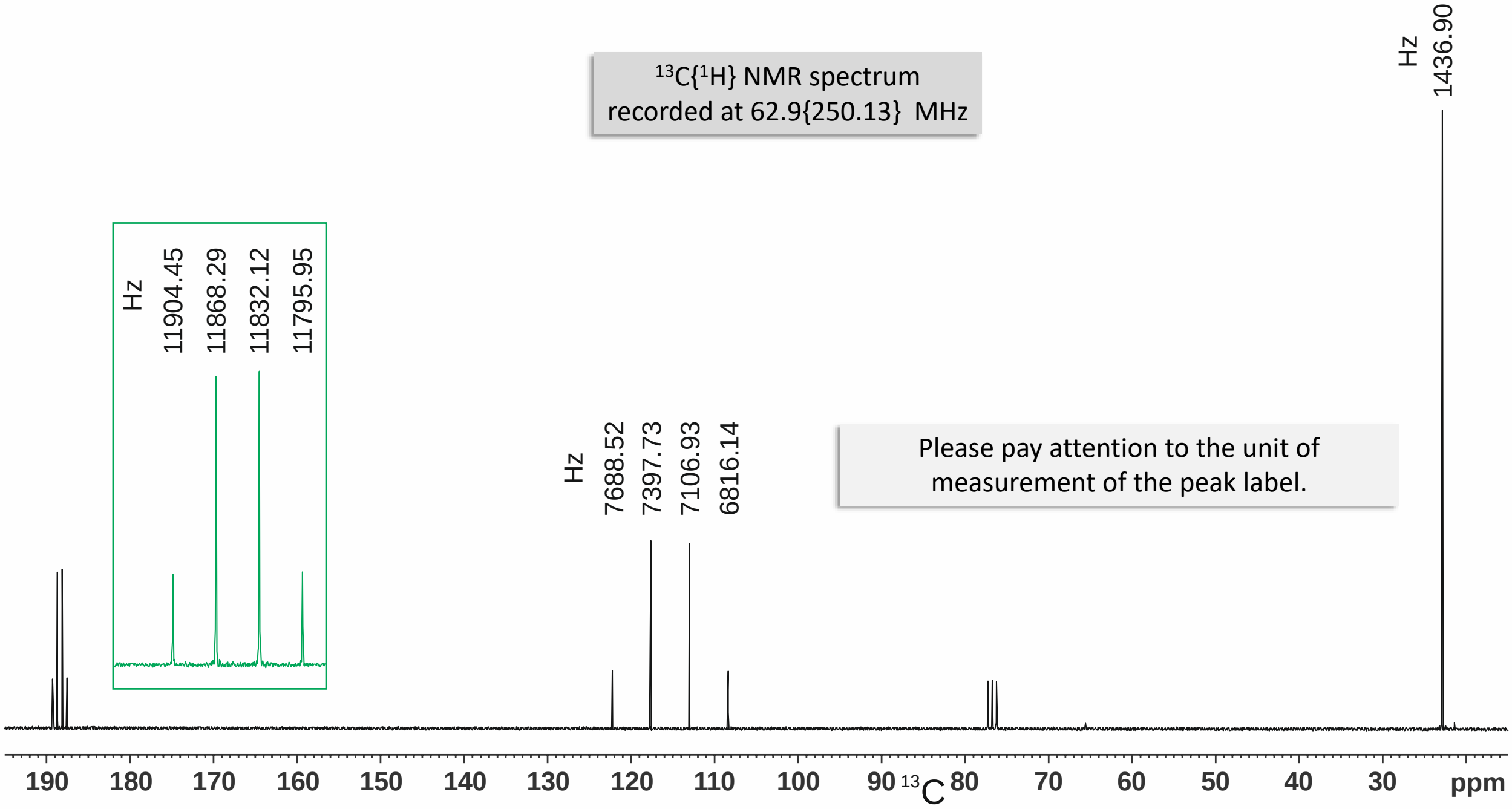
$C_3H_3F_3O$ measured in $CDCl_3$

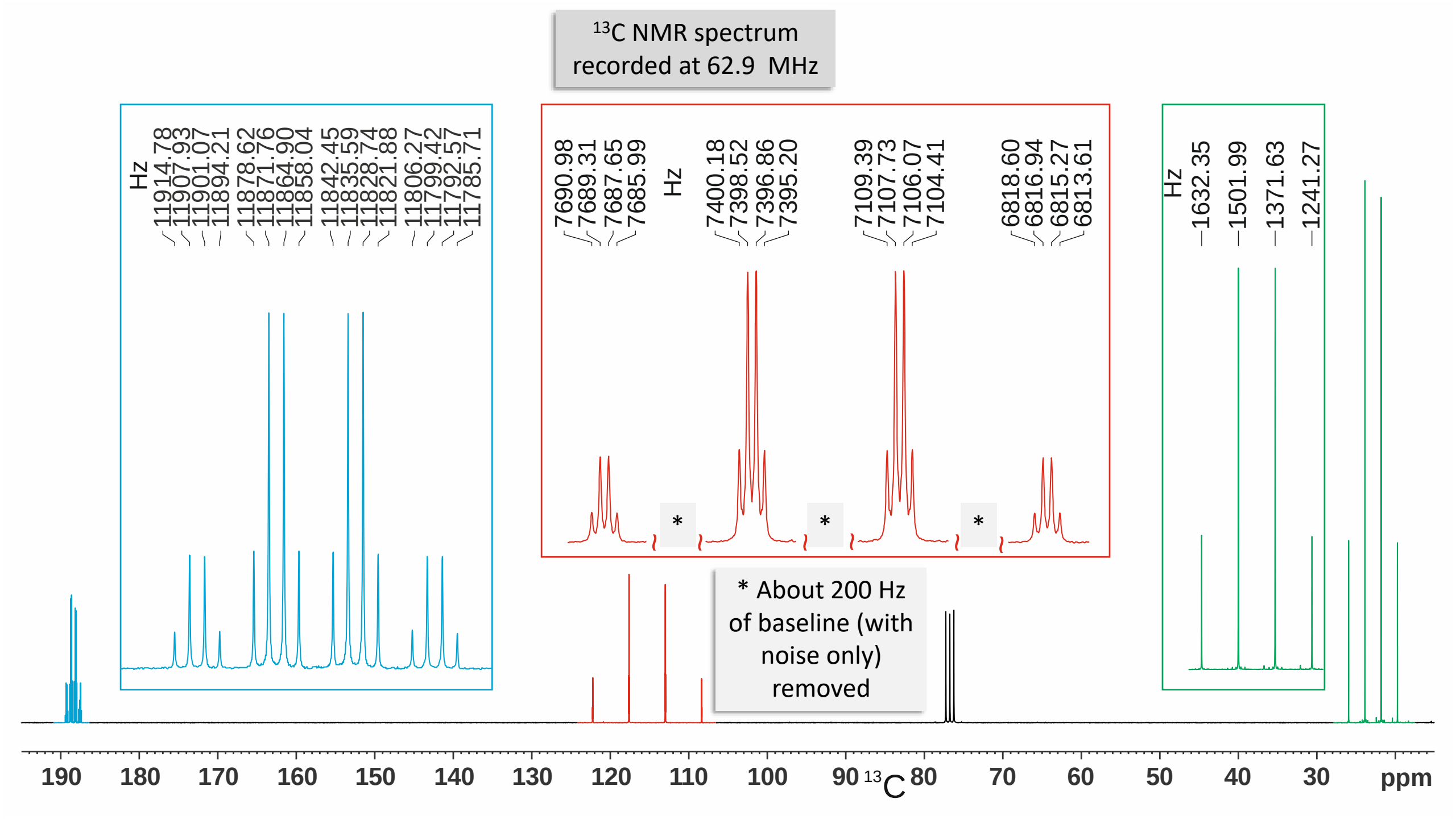
Deduce the structure!
Measure all coupling constants!



^{1}H NMR spectrum recorded at 250.13 MHz

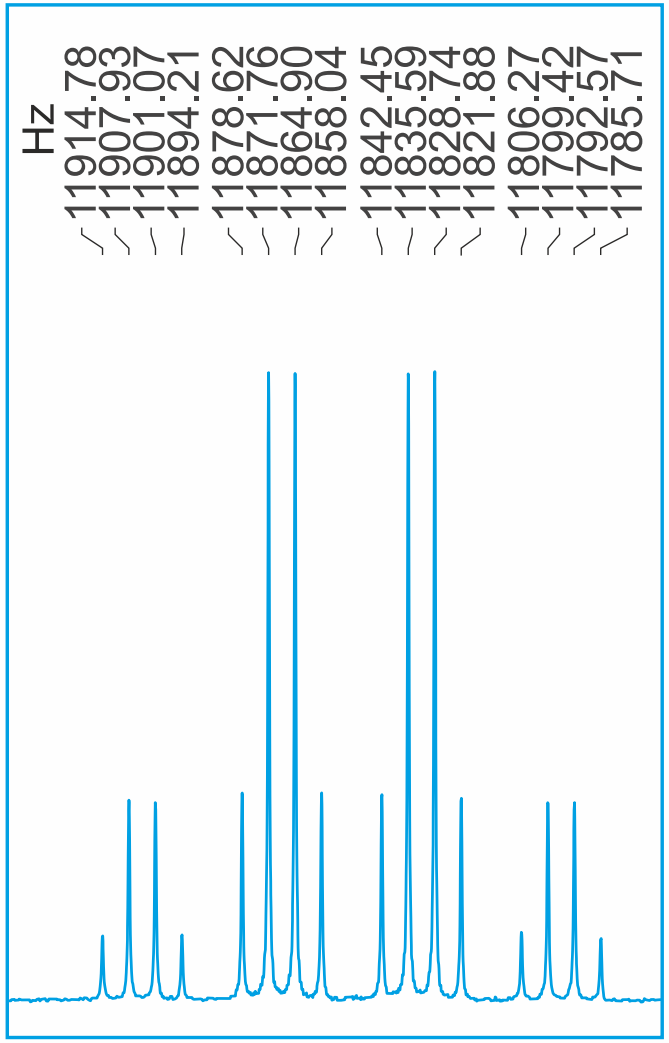
That‘s the only signal within the ^{1}H NMR spectrum!
There is nothing missing.

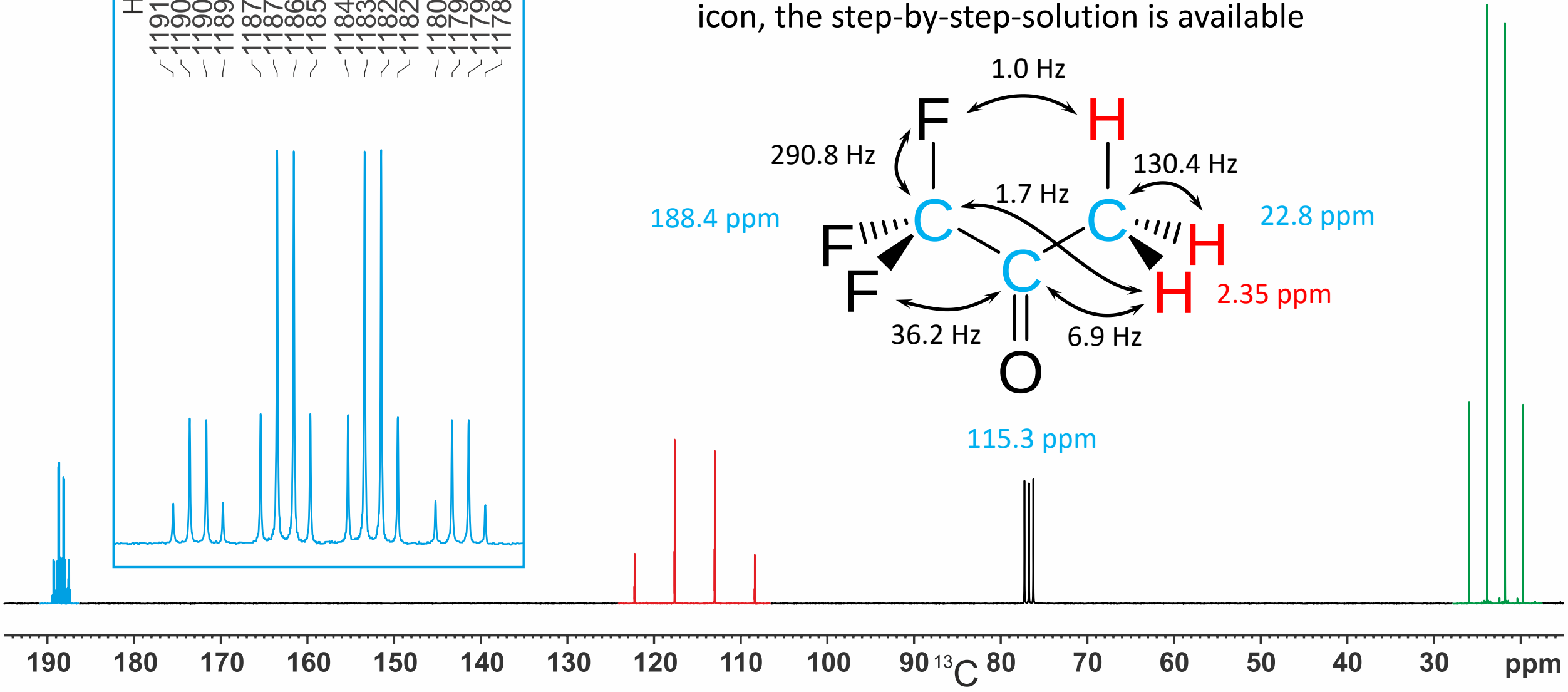

$^{13}C\{^{1}H\}$ NMR spectrum
recorded at 62.9{250.13} MHz
Please pay attention to the unit of
measurement of the peak label.
Hz
1436.90
Hz
11904.45
11868.29
11832.12
11795.95
Hz
7688.52
7397.73
7106.93
6816.14
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
ppm
^{13}C


^{13}C NMR spectrum recorded at 62.9 MHz
Hz
11914.78
11907.93
11901.07
11894.21
11878.62
11871.76
11864.90
11858.04
11842.45
11835.59
11828.74
11821.88
11806.27
11799.42
11792.57
11785.71
Hz
7690.98
7689.31
7687.65
7685.99
Hz
7400.18
7398.52
7396.86
7395.20
7109.39
7107.73
7106.07
7104.41
6818.60
6816.94
6815.27
6813.61
Hz
1632.35
1501.99
1371.63
1241.27
*
*
*
* About 200 Hz of baseline (with noise only) removed
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
ppm
^{13}C

Solution at a glance

As soon as you see the green footprints on the problem icon, the step-by-step-solution is available





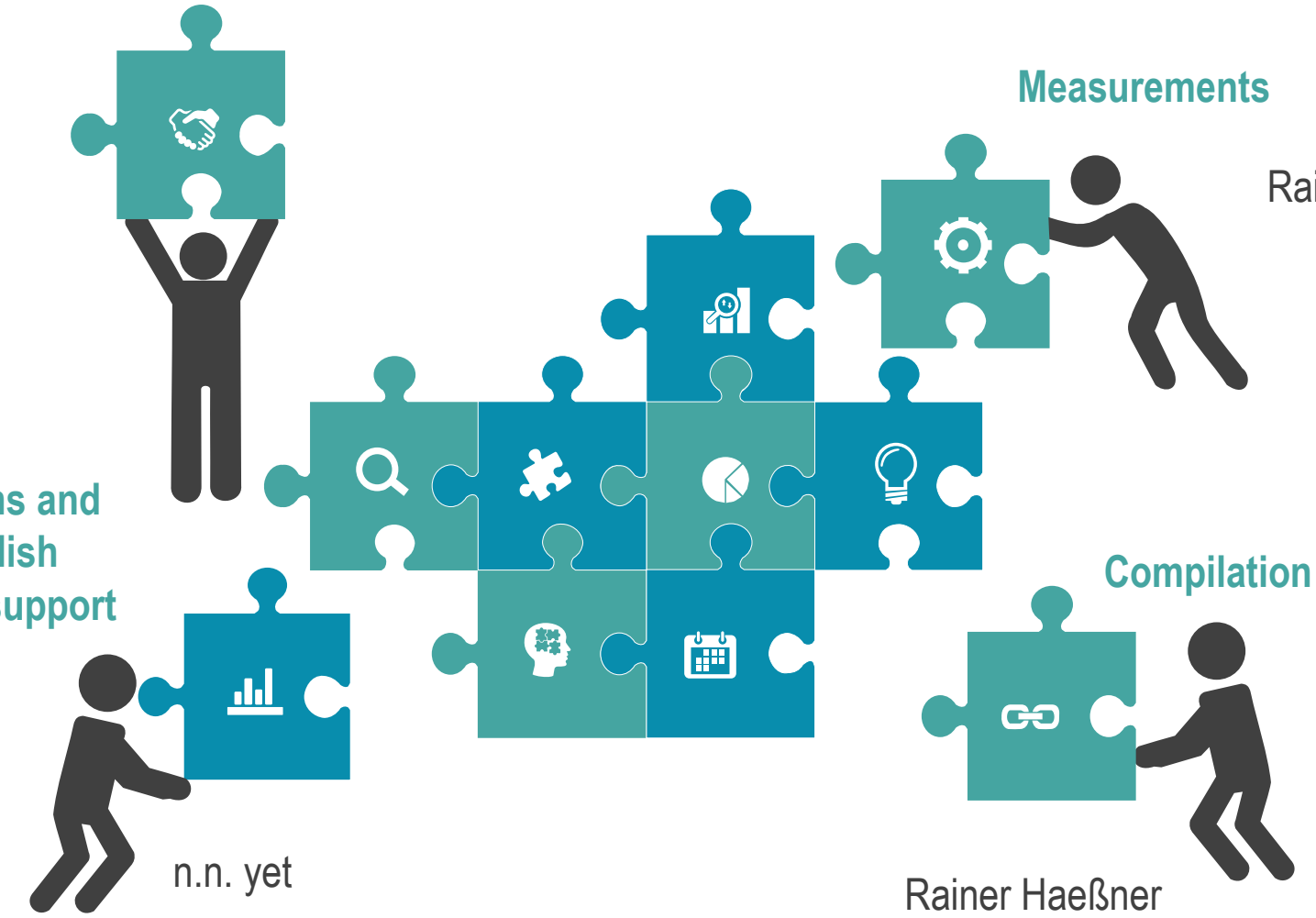
Contributions

Spectrometer time

TU Munich

Measurements

Rainer Haeßner



Discussions and native English language support

n.n. yet

Compilation

Rainer Haeßner

More exercises …