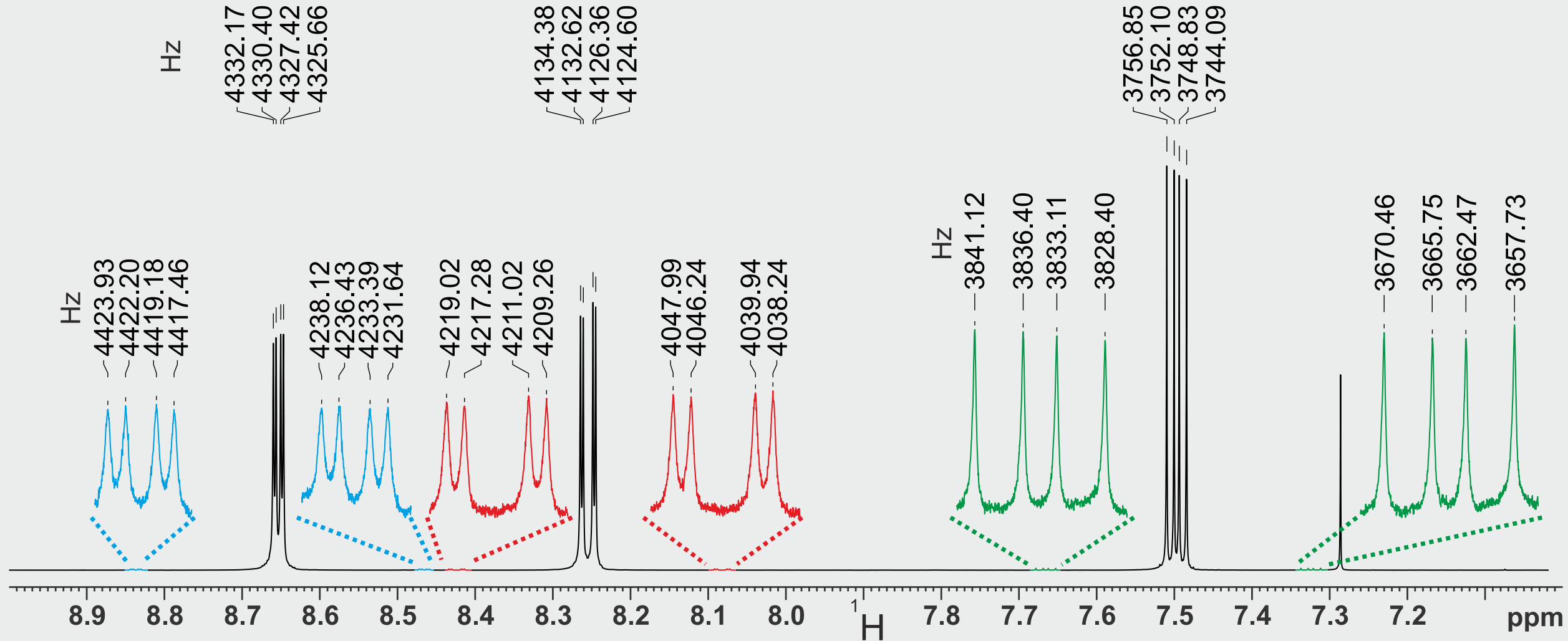


Exercise plus Solution – Quick PDF overview

It is recommended to use this PDF 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.

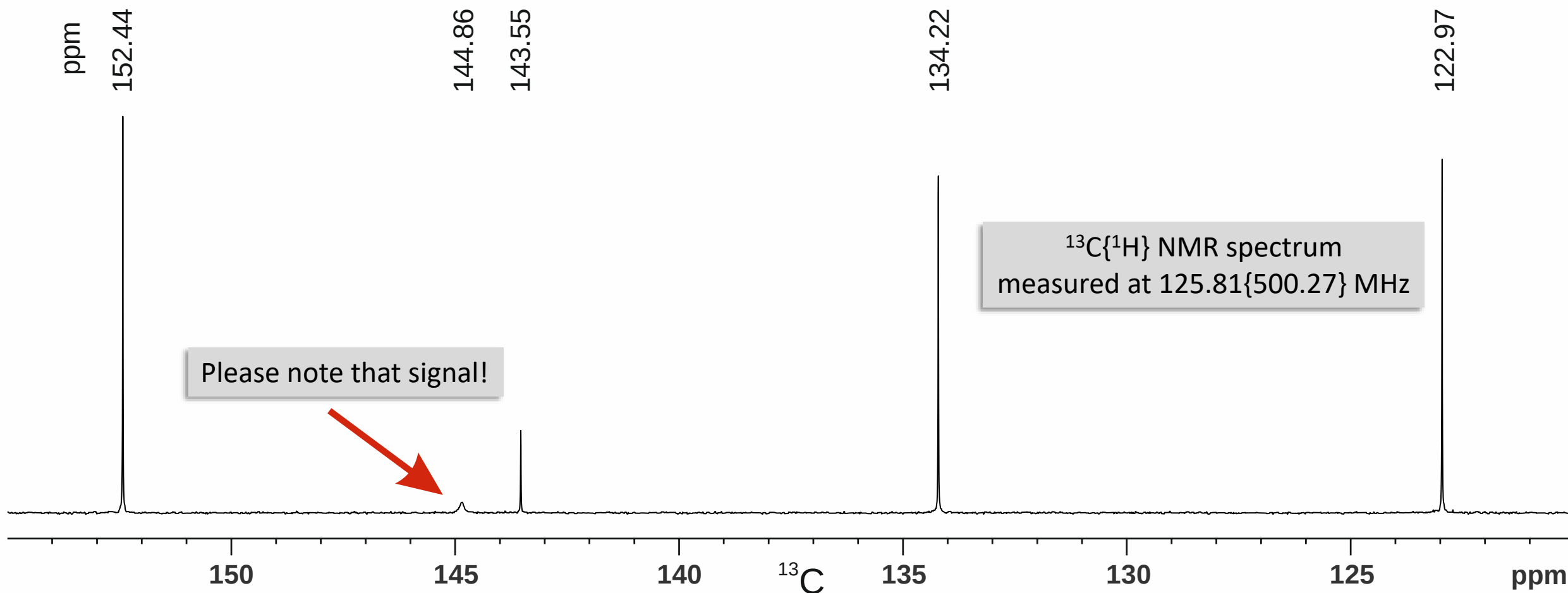


$\text{C}_5\text{H}_3\text{ClN}_2\text{O}_2$ measured in CDCl_3

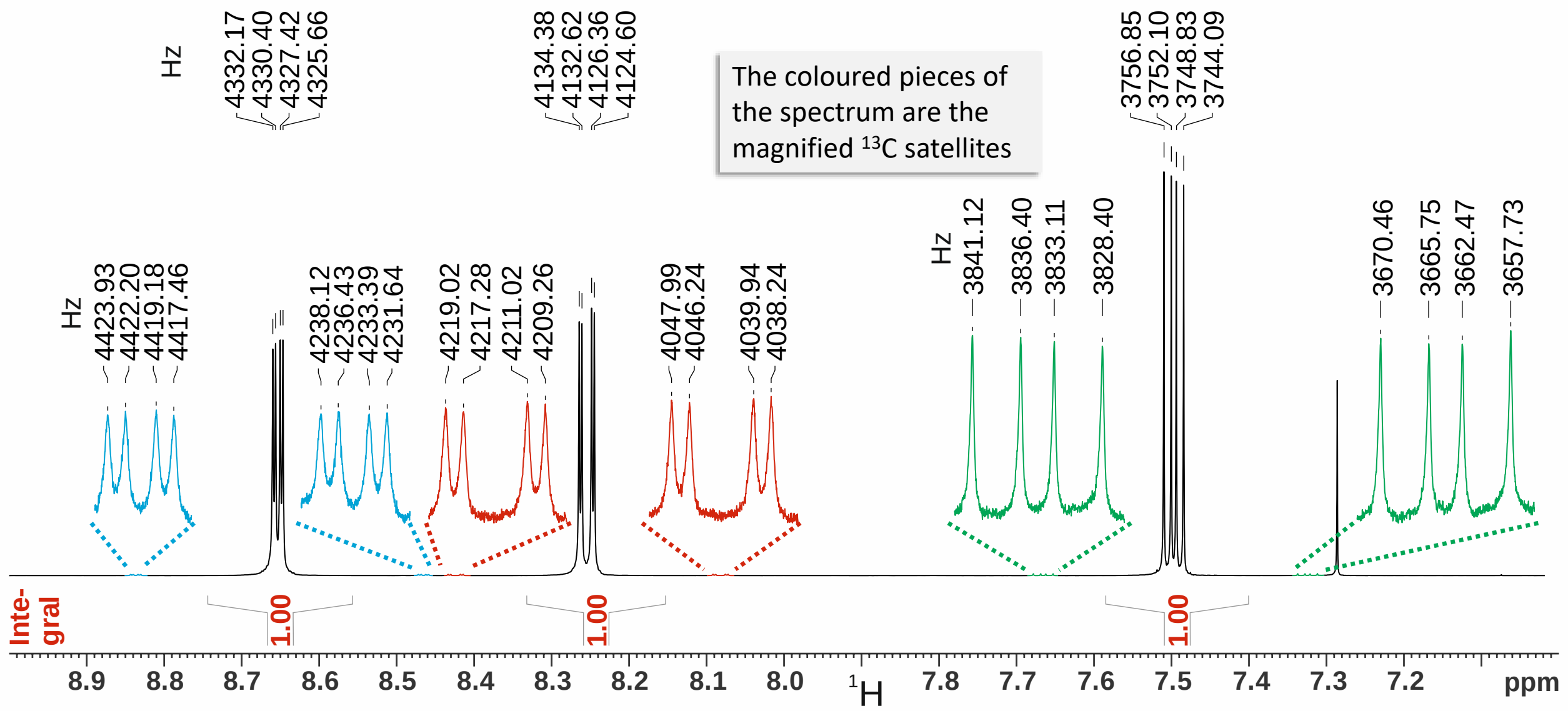
Deduce the structure!

Assign all carbon, nitrogen and proton chemical shifts!

Measure as many homo- and heteronuclear coupling constants as possible!

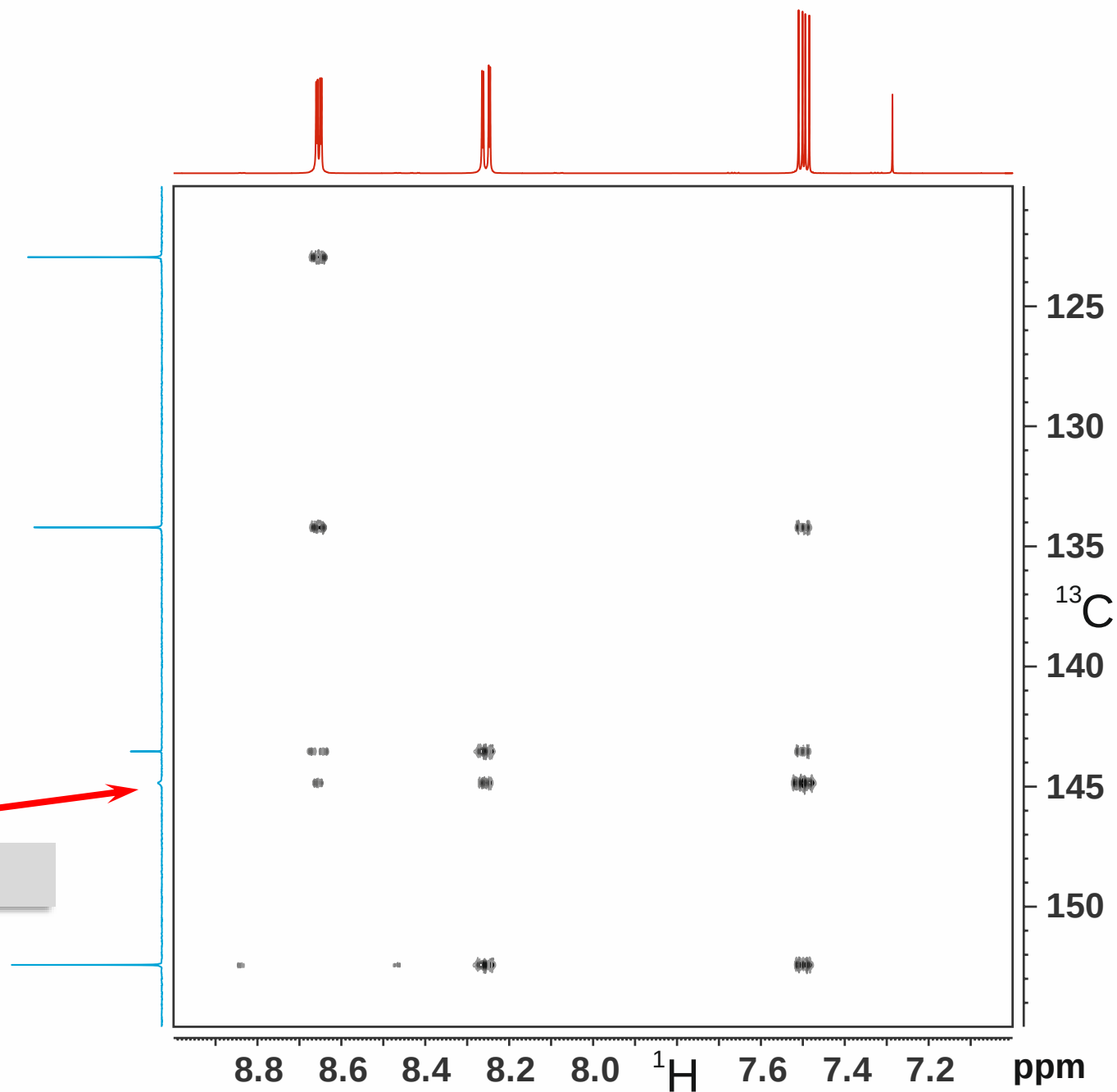


^1H NMR spectrum
measured at 500.27 MHz

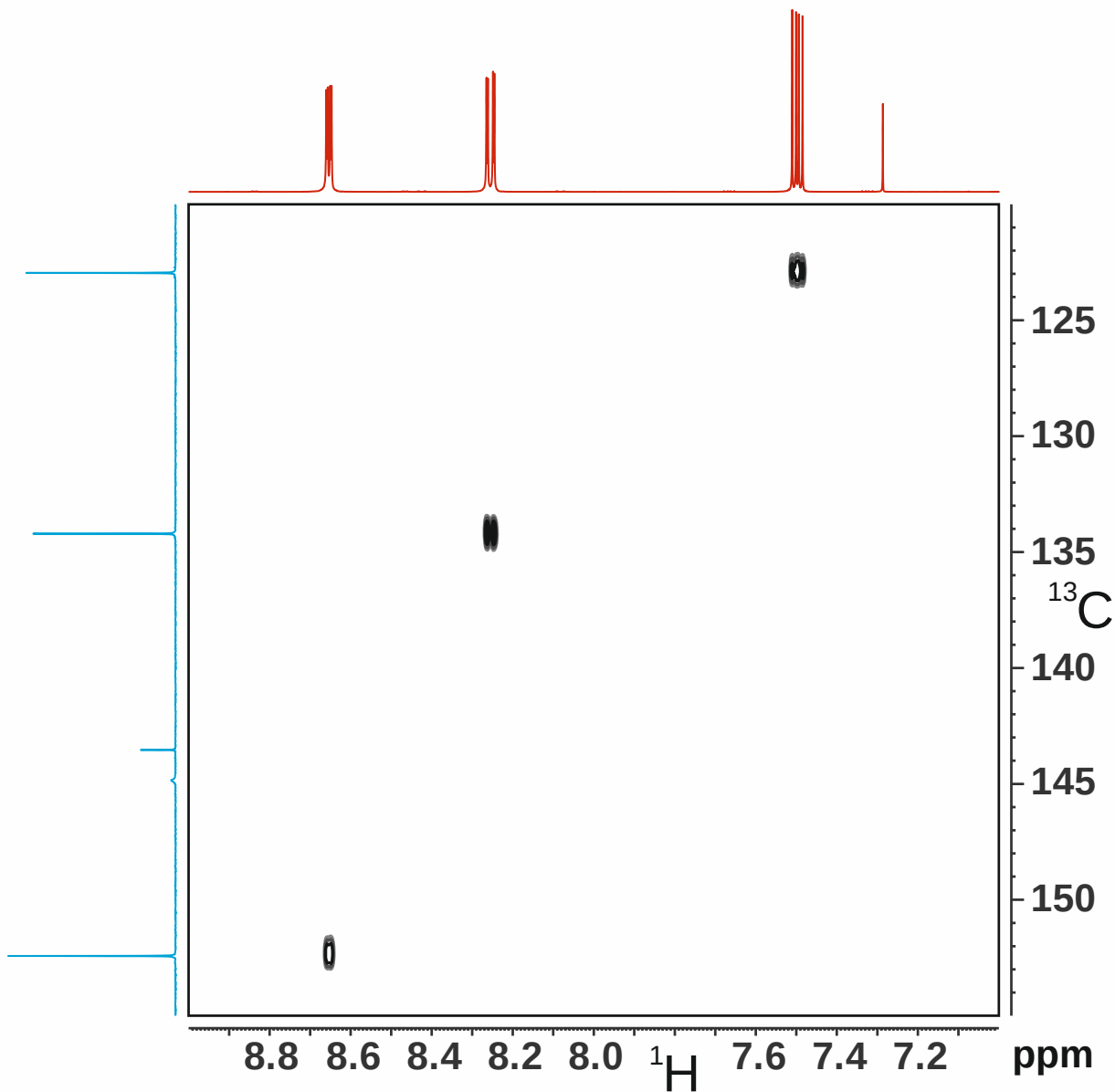


$^1\text{H}/^{13}\text{C}$ HMBC
measured at 500.27/125.81 MHz

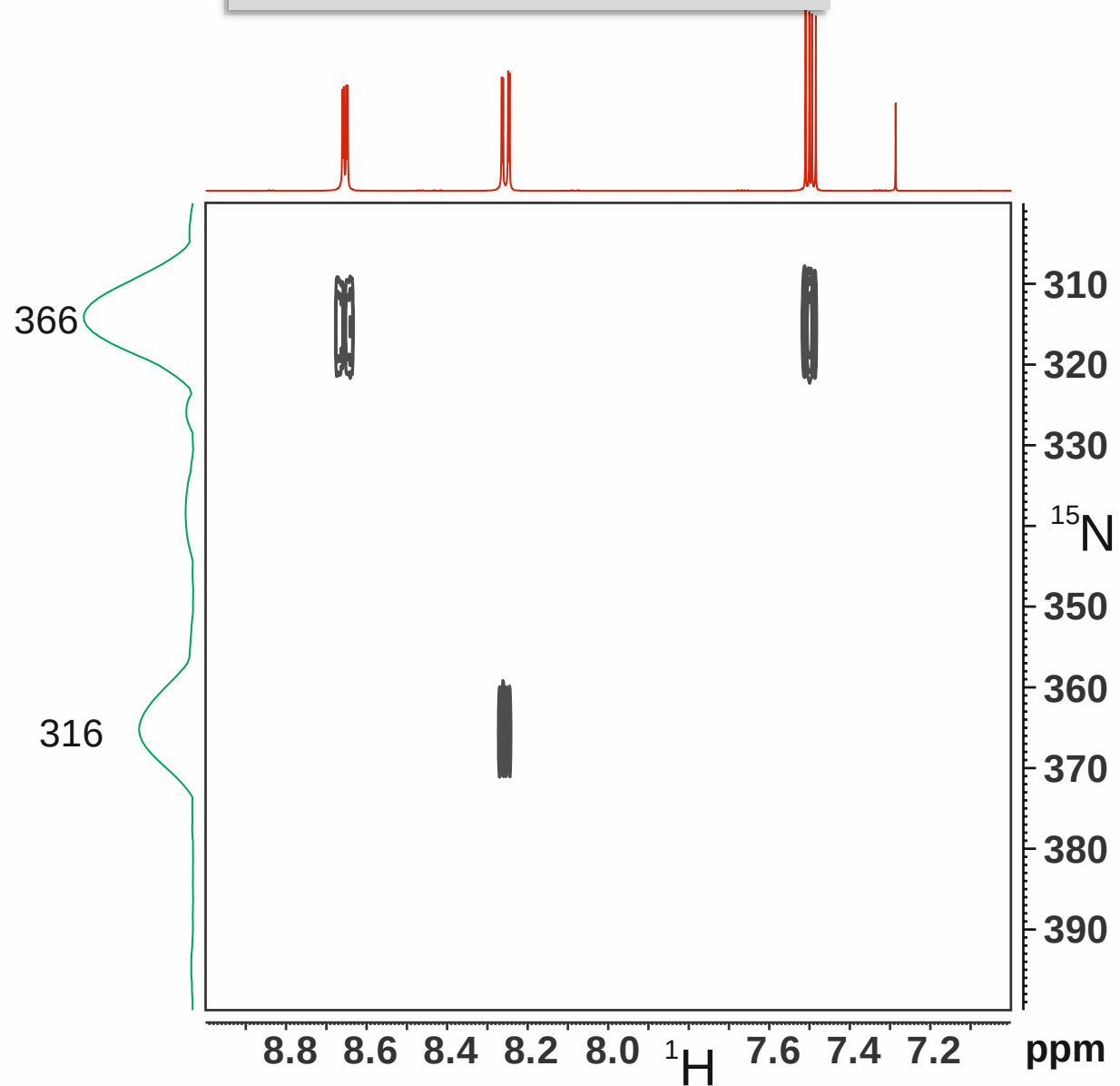
Please note the clear correlations with the tiny ^{13}C signal



$^1\text{H}/^{13}\text{C}$ HSQC
measured at 500.27/125.81 MHz

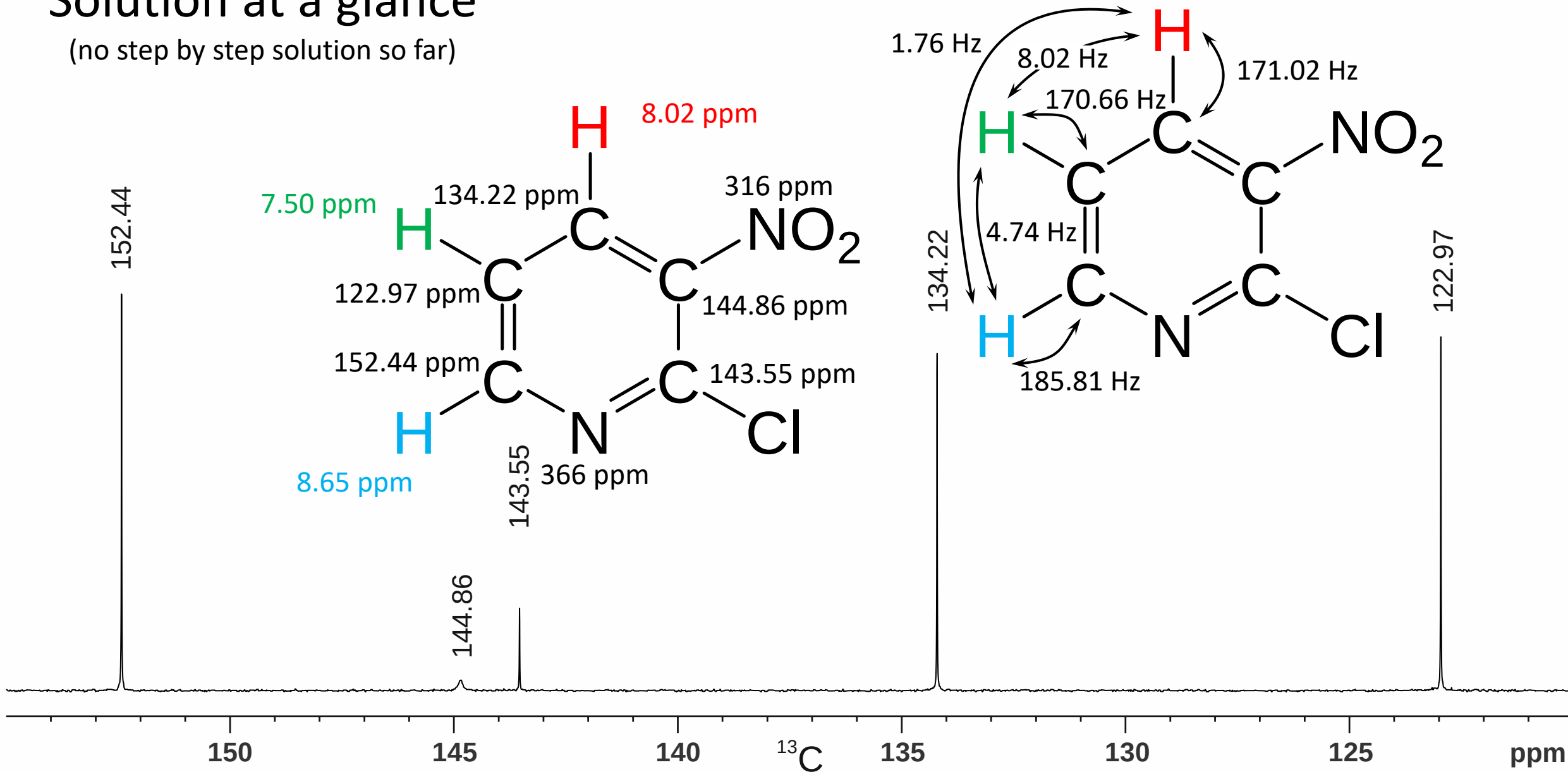


$^1\text{H}/^{15}\text{N}$ HMBC
measured at 500.27/50.70 MHz



Solution at a glance

(no step by step solution so far)



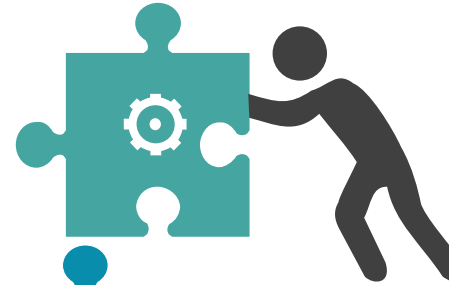
Contributions

Spectrometer time

TU Munich

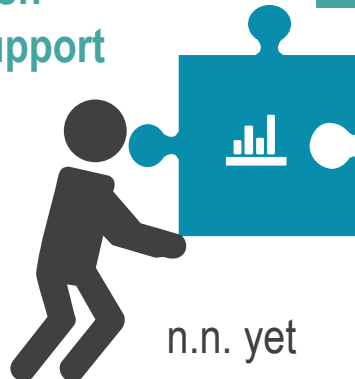


Measurements



Rainer Haeßner

Discussions and
native English
language support



n.n. yet

Compilation



Rainer Haeßner

[More exercises ...](#)