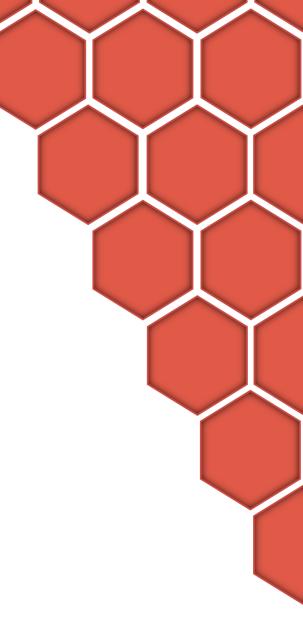
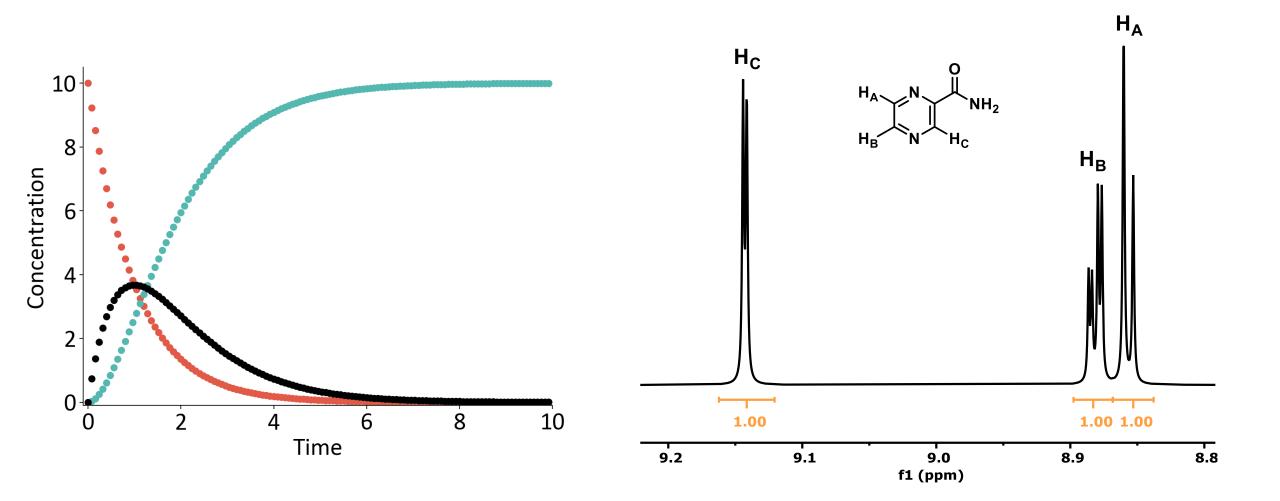


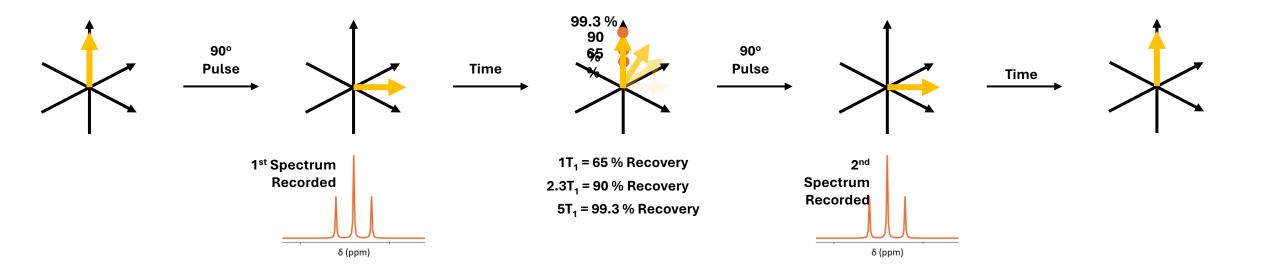
What is T₁ and Why Does it Matter?

Annabel Flook

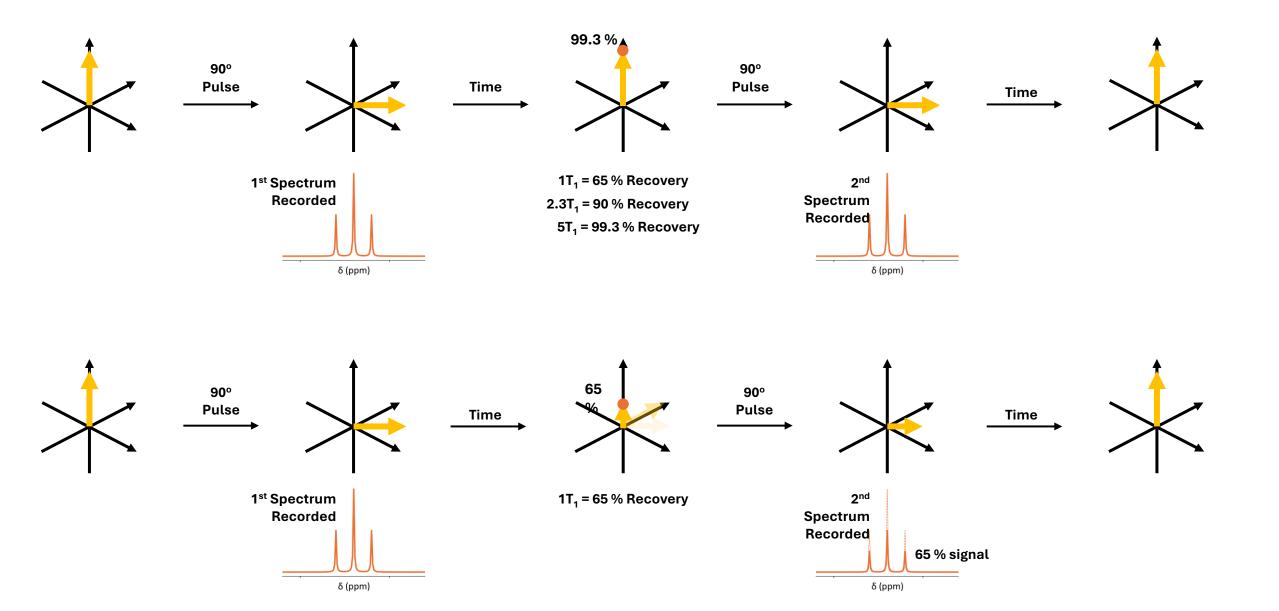




Longitudinal Relaxation Time (T₁)

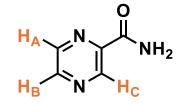


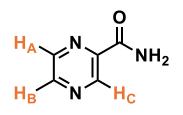
Longitudinal Relaxation Time (T₁)



Longitudinal Relaxation Time (T₁) – Some Examples

Degassed





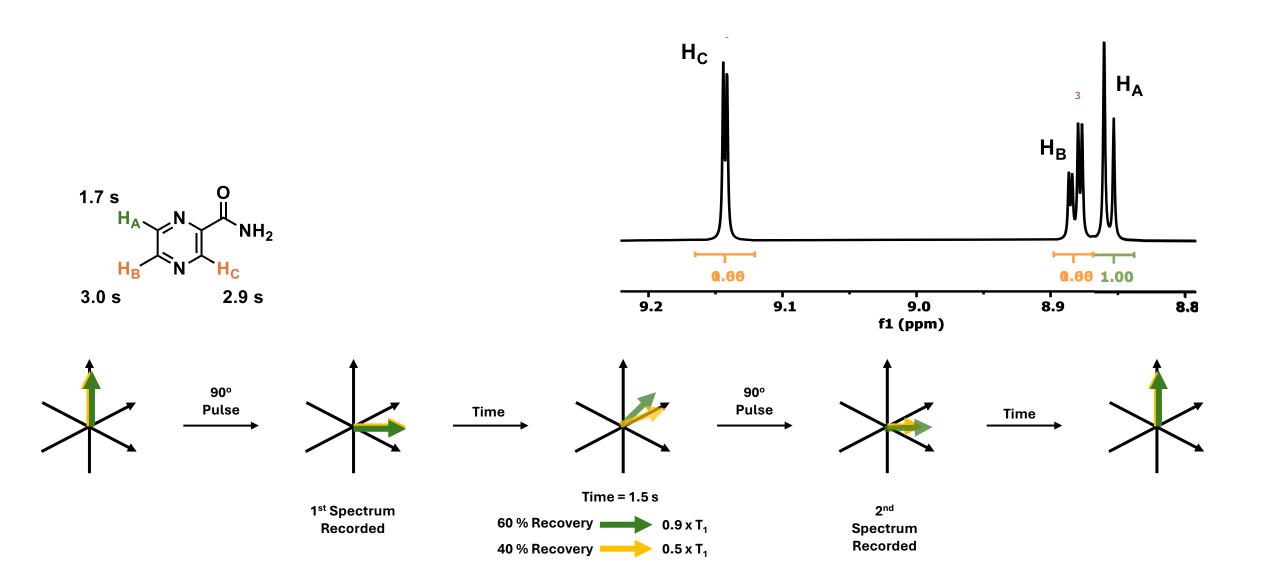
Each nuclear environment can have a different T₁

Changing the chemical environment can impact T₁



Changing temperature also impacts T₁

¹H T₁ Measurements: J. Org. Chem. **2021**, 86, 9023–9029. ¹⁹F T₁ Measurements: Submitted for Publication



Longitudinal Relaxation Time (T_1) – What to Do?



T₁ Measurements ^(1, 2)

- Inversion Recovery
- Saturation Recovery
- Progressive Saturation
- FLIPS



Spectrum is unaffected by T_1

- Only for abundant nuclei
- Not for reaction monitoring

1. Kingsley, P. B. Concepts Magn. Reson. 1999, 11, 243–276, 2. Wei, R.; Dickson, C. L.; Uhrín, D.; Lloyd-Jones, G. C. J. Org. Chem. 2021, 86, 9023–9029