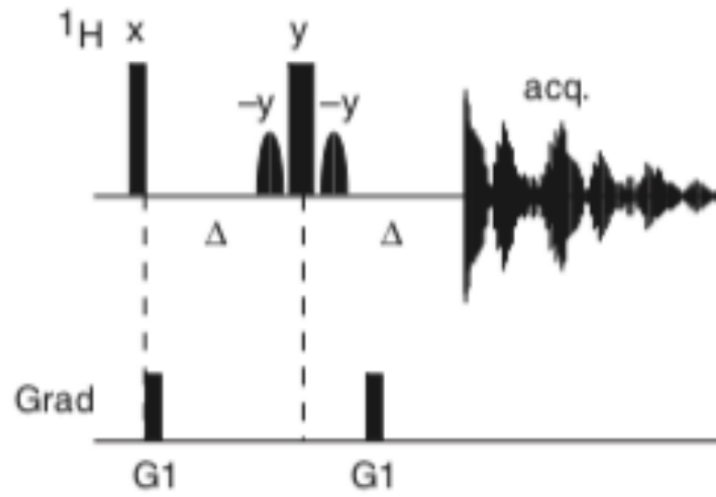


# NMR structural analysis – seminar

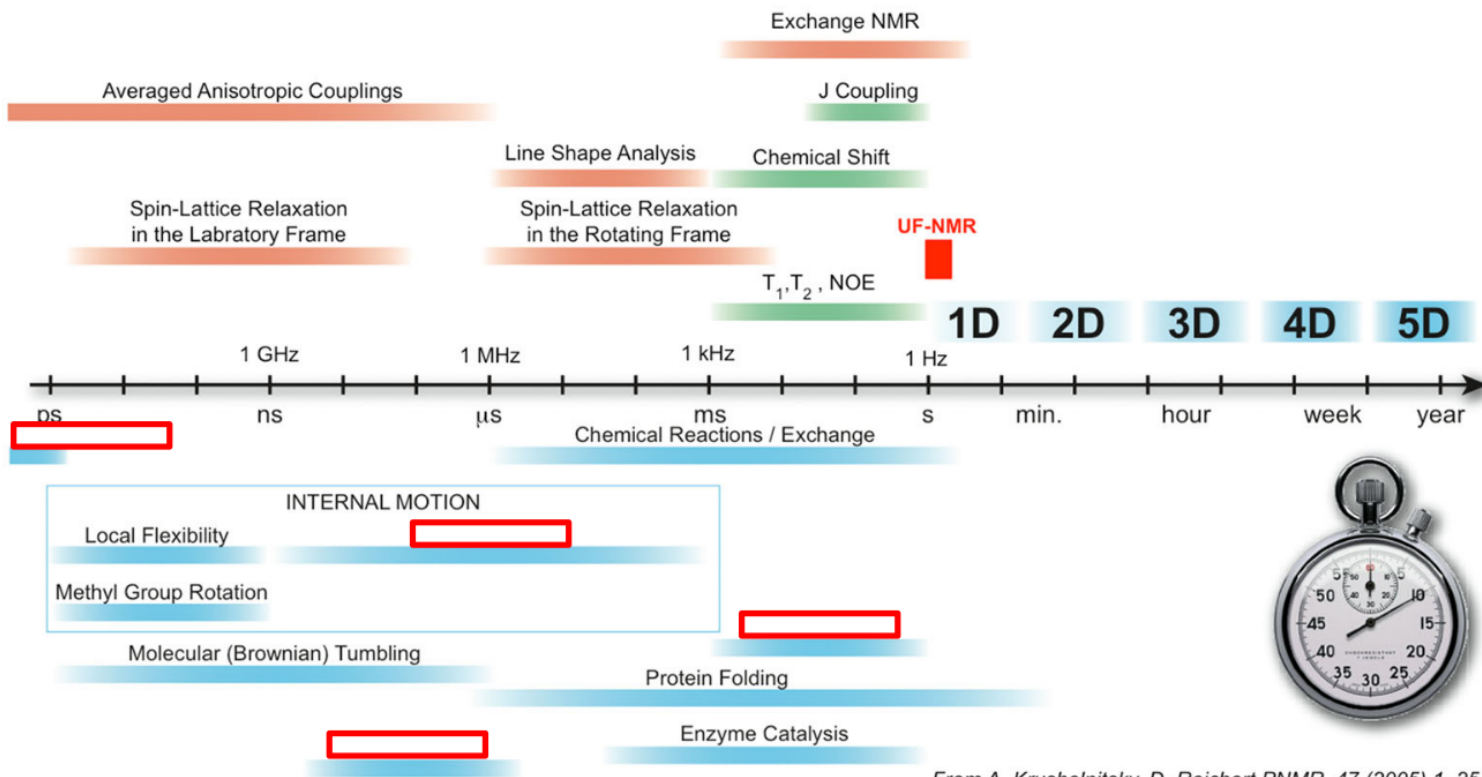
May 4, 2022

# Water suppression



Soft-hard-soft:  $90^\circ_{-y}-180^\circ_y-90^\circ_{-y}$

# Localize dynamical processes: *domain motions, vibration, H-transfer, diffusion*



From A. Krushelnitsky, D. Reichert *PNMR* 47 (2005) 1–25

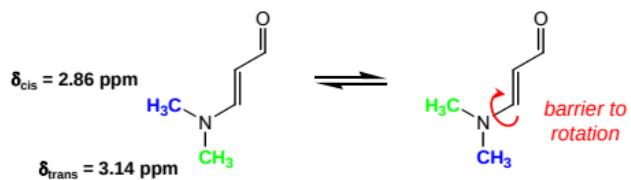
# Kinetic data from T-dependent NMR experiments

## Measuring Dynamics with NMR

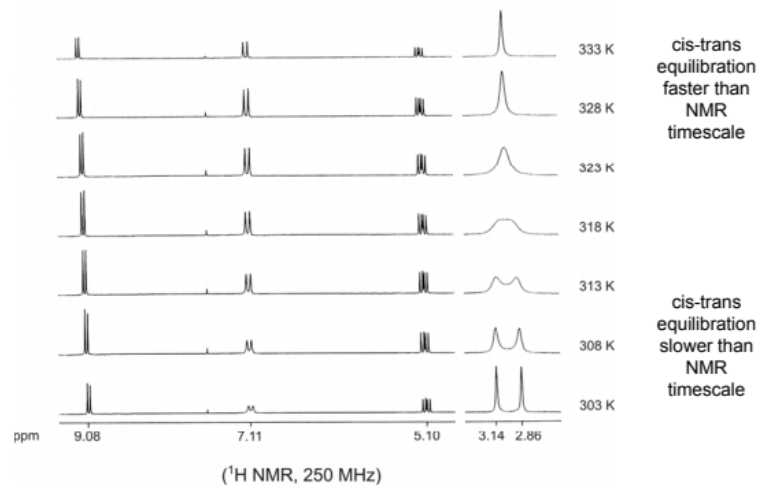
For nuclei that undergo chemical exchange:

- If chemical exchange is **slower** than NMR timescale, then all signals of components are observed.

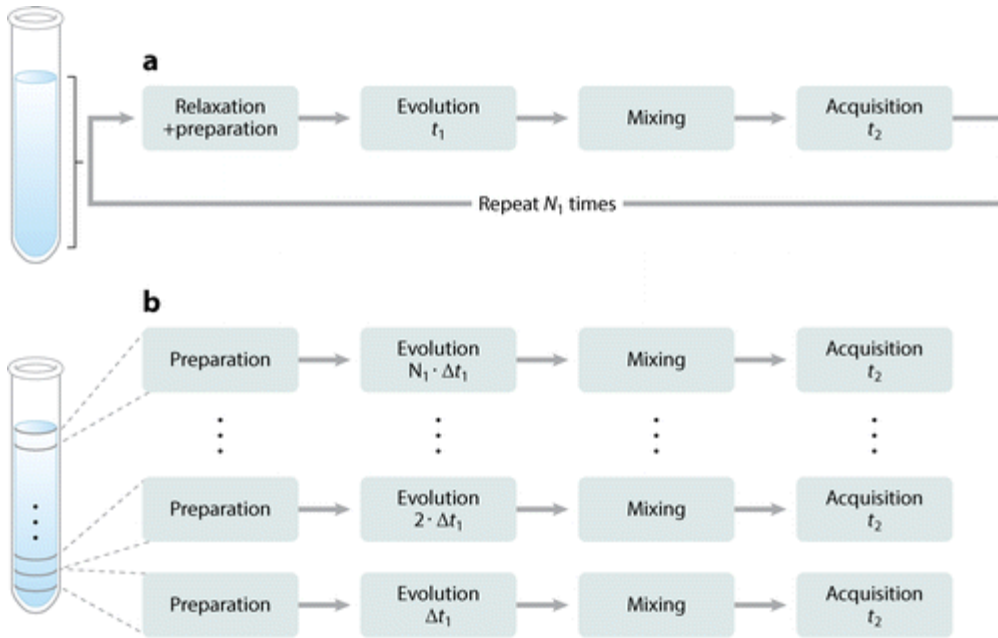
Example: Conformational equilibria.




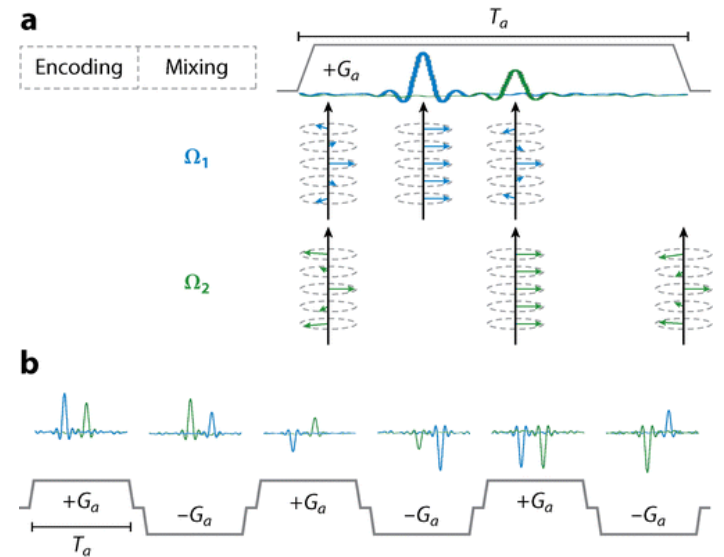
## Measuring Dynamics with NMR




# Ultra-fast NMR

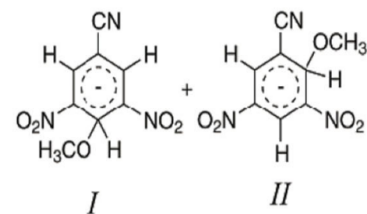
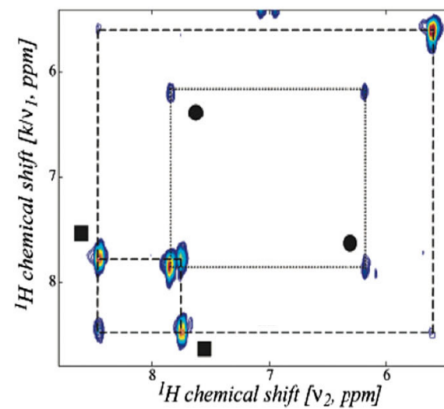
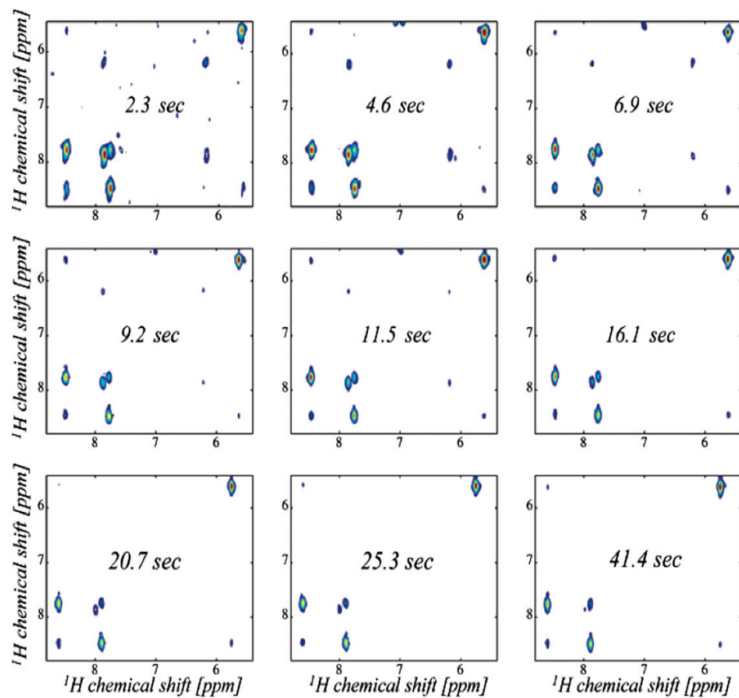
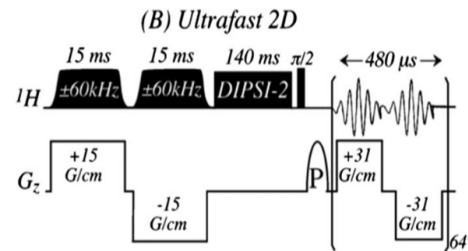
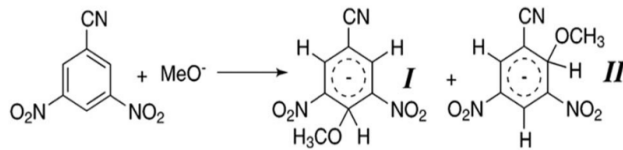


 Giraudeau P, Frydman L. 2014. Annu. Rev. Anal. Chem. 7:129–61

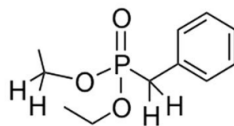


 Giraudeau P, Frydman L. 2014. Annu. Rev. Anal. Chem. 7:129–61

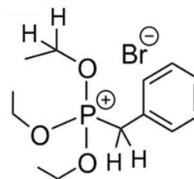
# Monitoring chemical reaction



# Monitoring chemical reaction

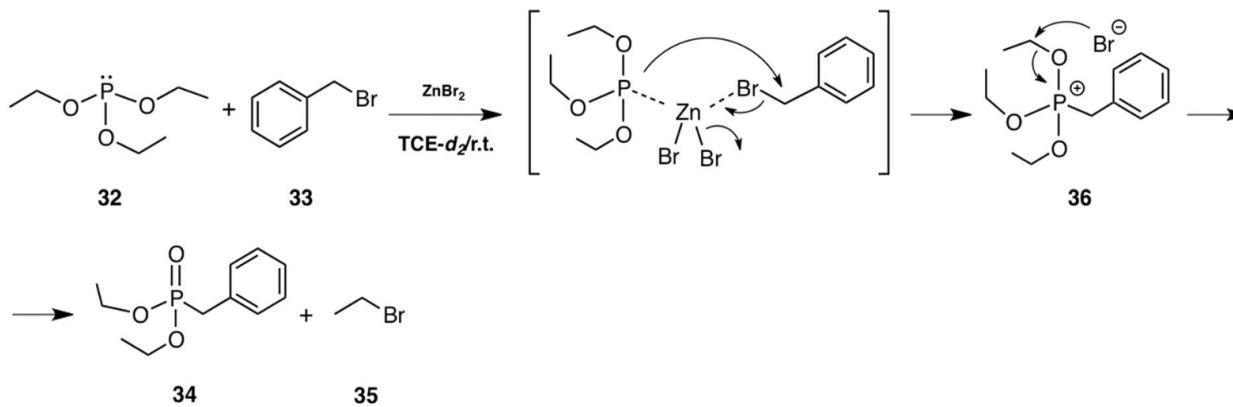
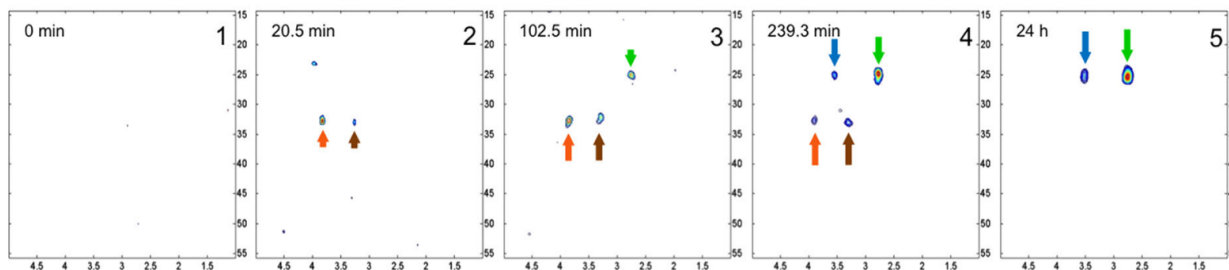


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**Spectral range: [1.00-5.00 ppm in  $^1\text{H}$  and 14.3-55.7 ppm in  $^{31}\text{P}$ ]**



# Paramagnetic NMR – pseudocontact shift

