
NMR Spectroscopy of Organic Compounds

Lesson 8: Dynamics

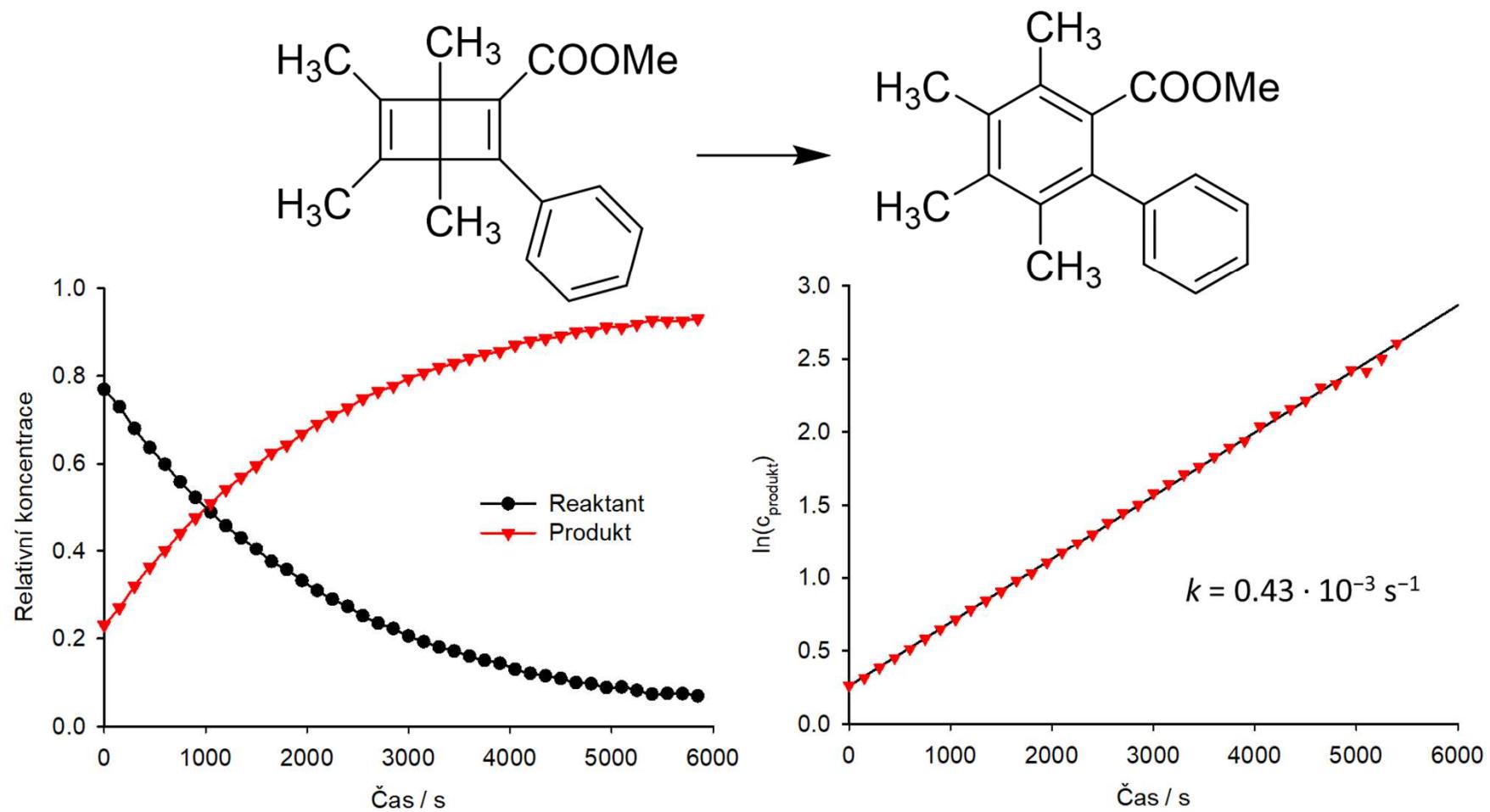


Martin Dračínský

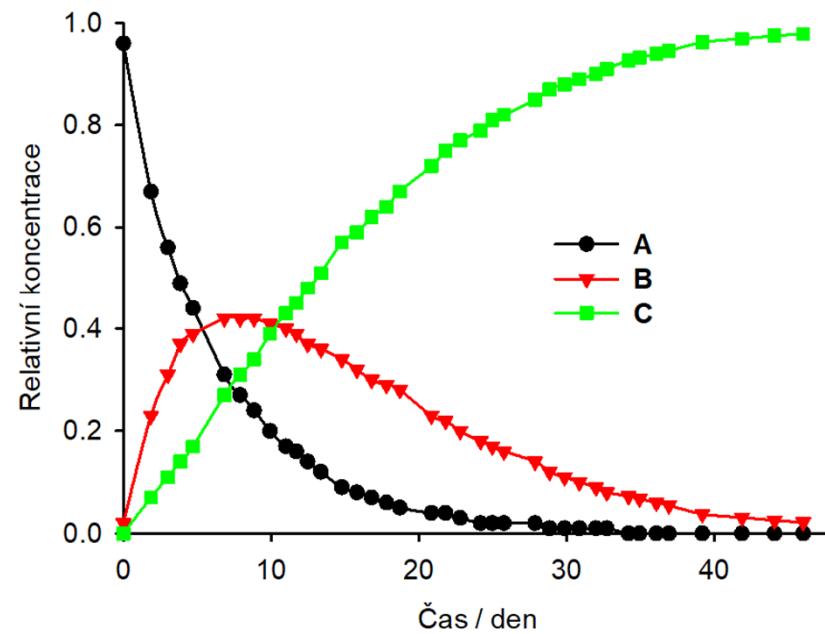
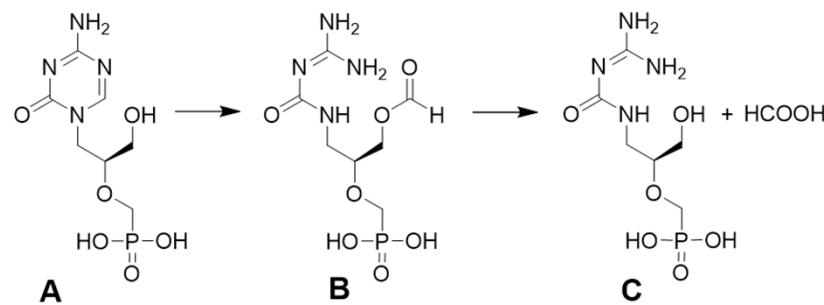
Overview

- Chemical reactions
 - Chemical exchange
 - Solvent suppression
-

Chemical reactions



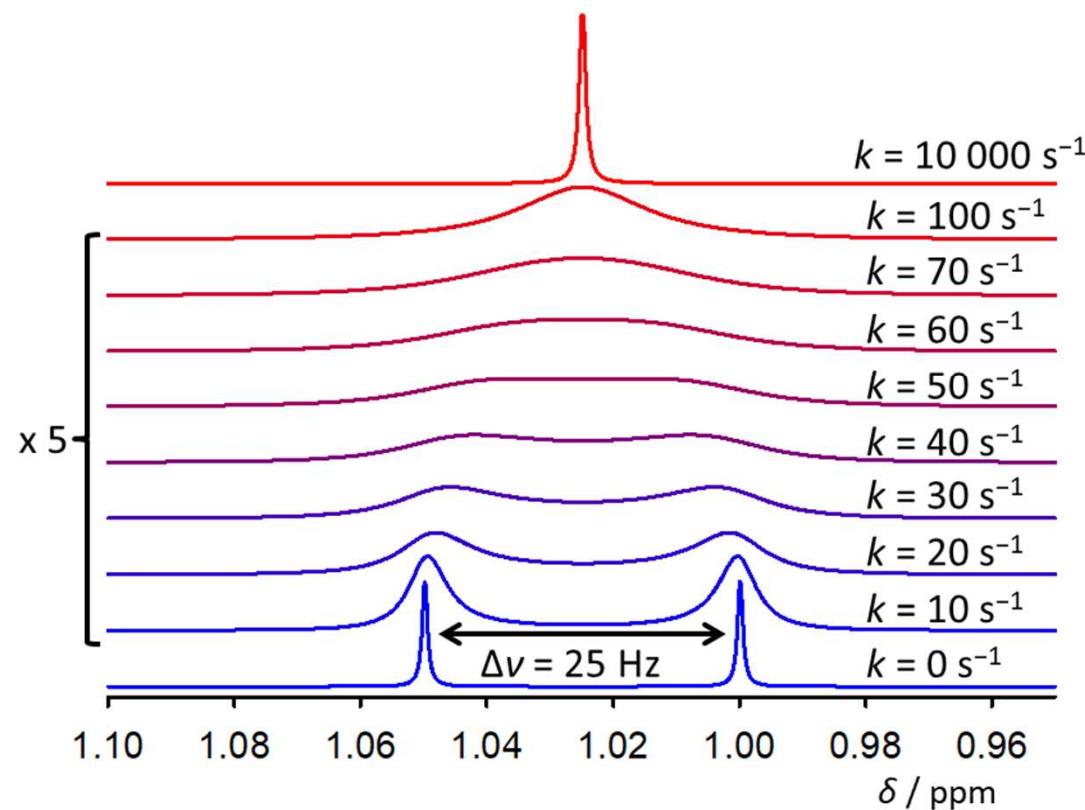
Chemical reactions



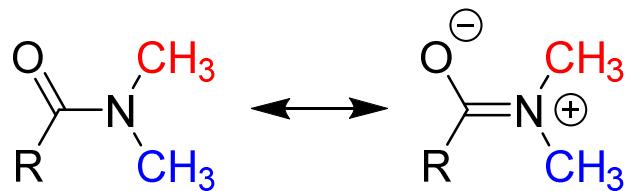
Chemical exchange



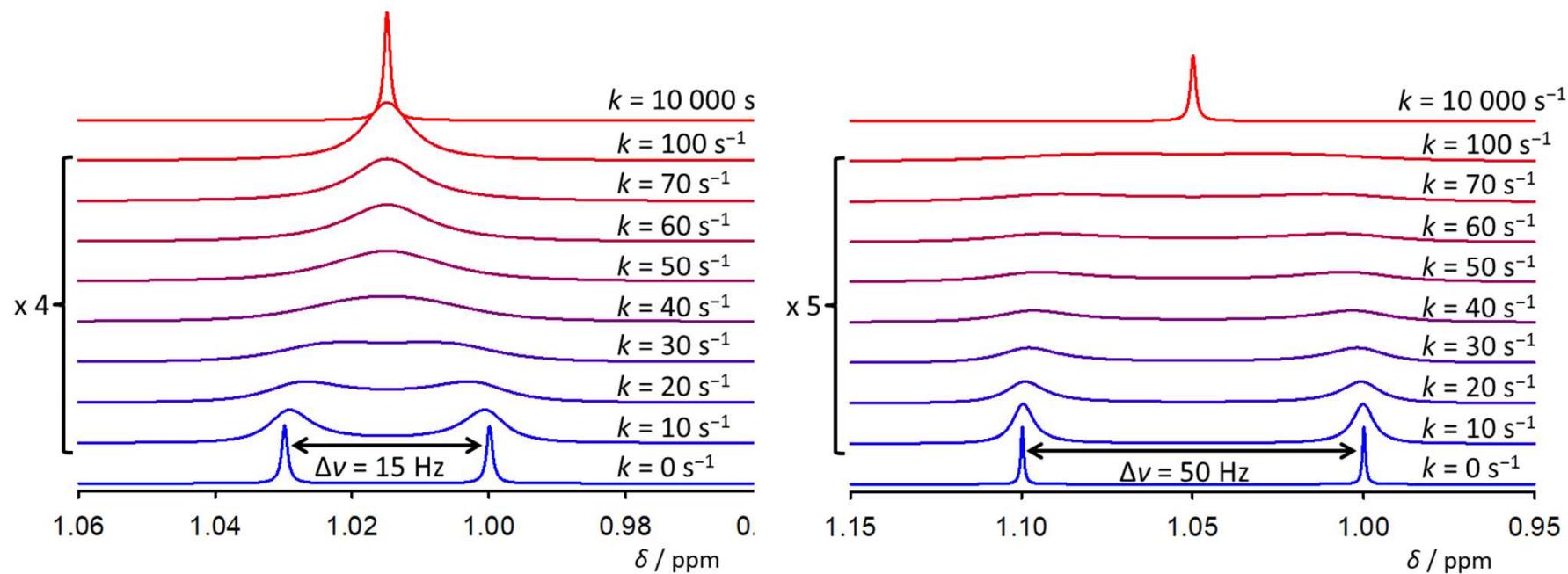
$$k_c = \pi \cdot \Delta v / \sqrt{2} = 2.22 \cdot \Delta v$$



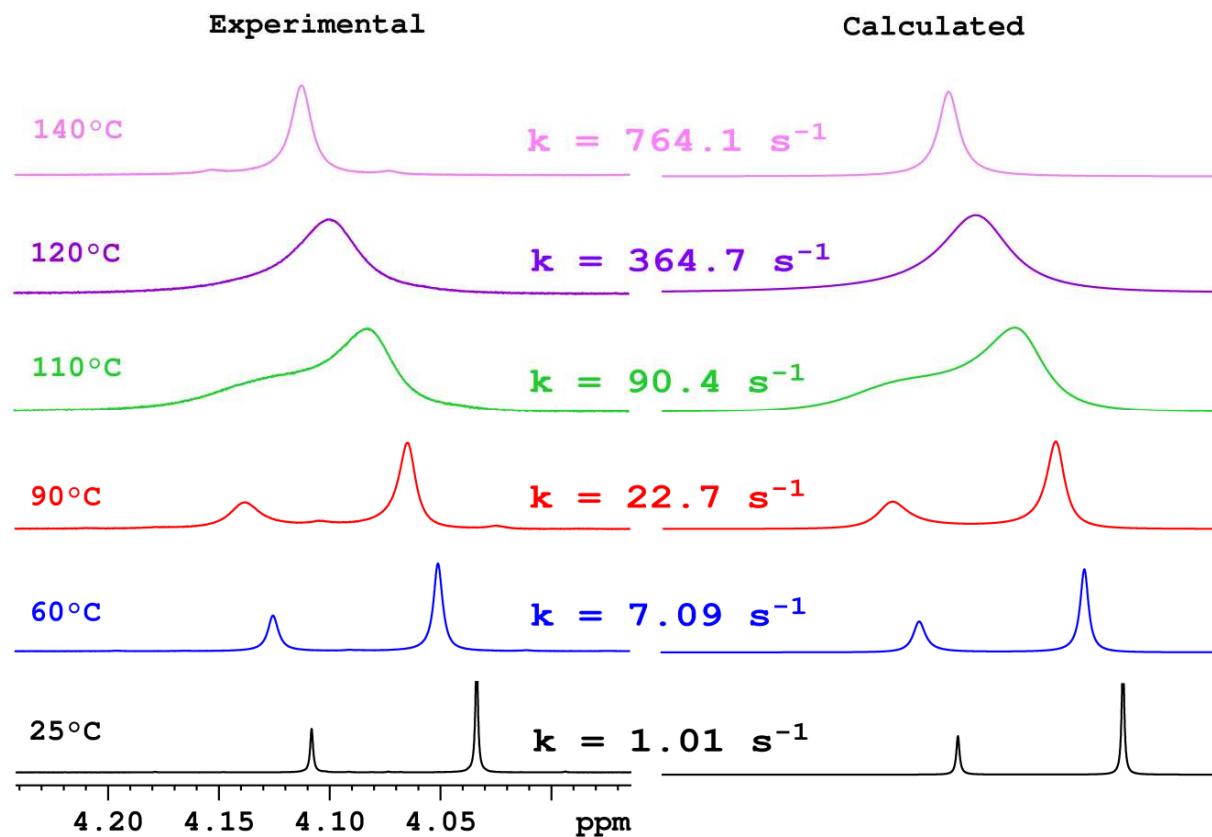
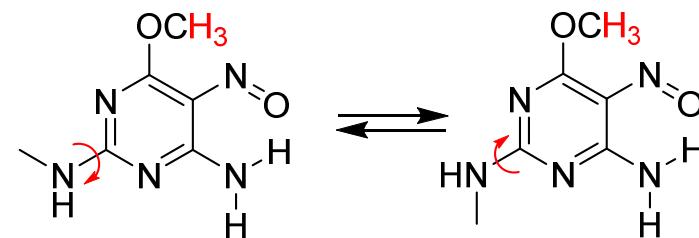
Chemical exchange



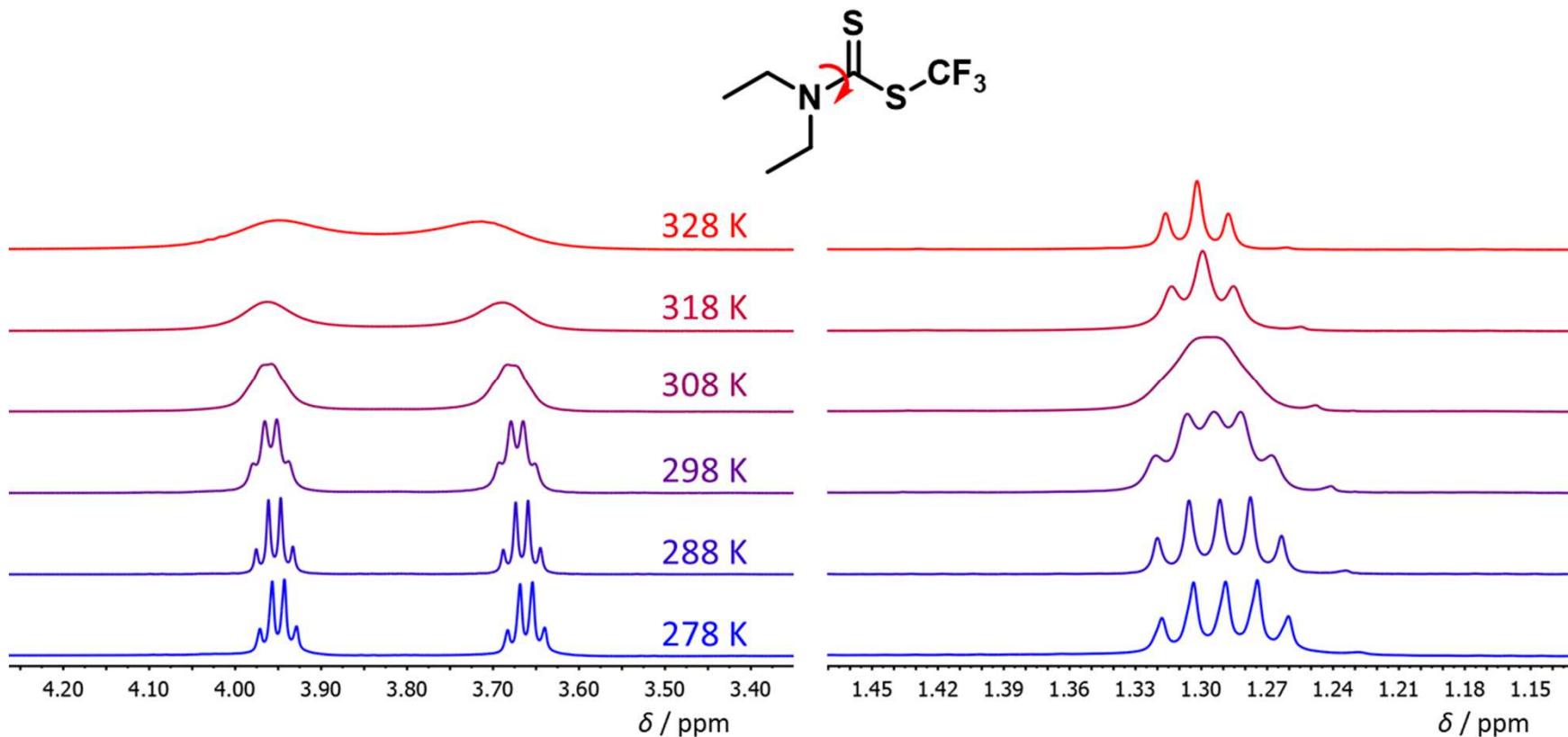
$$k_c = \pi \cdot \Delta v / \sqrt{2} = 2.22 \cdot \Delta v$$



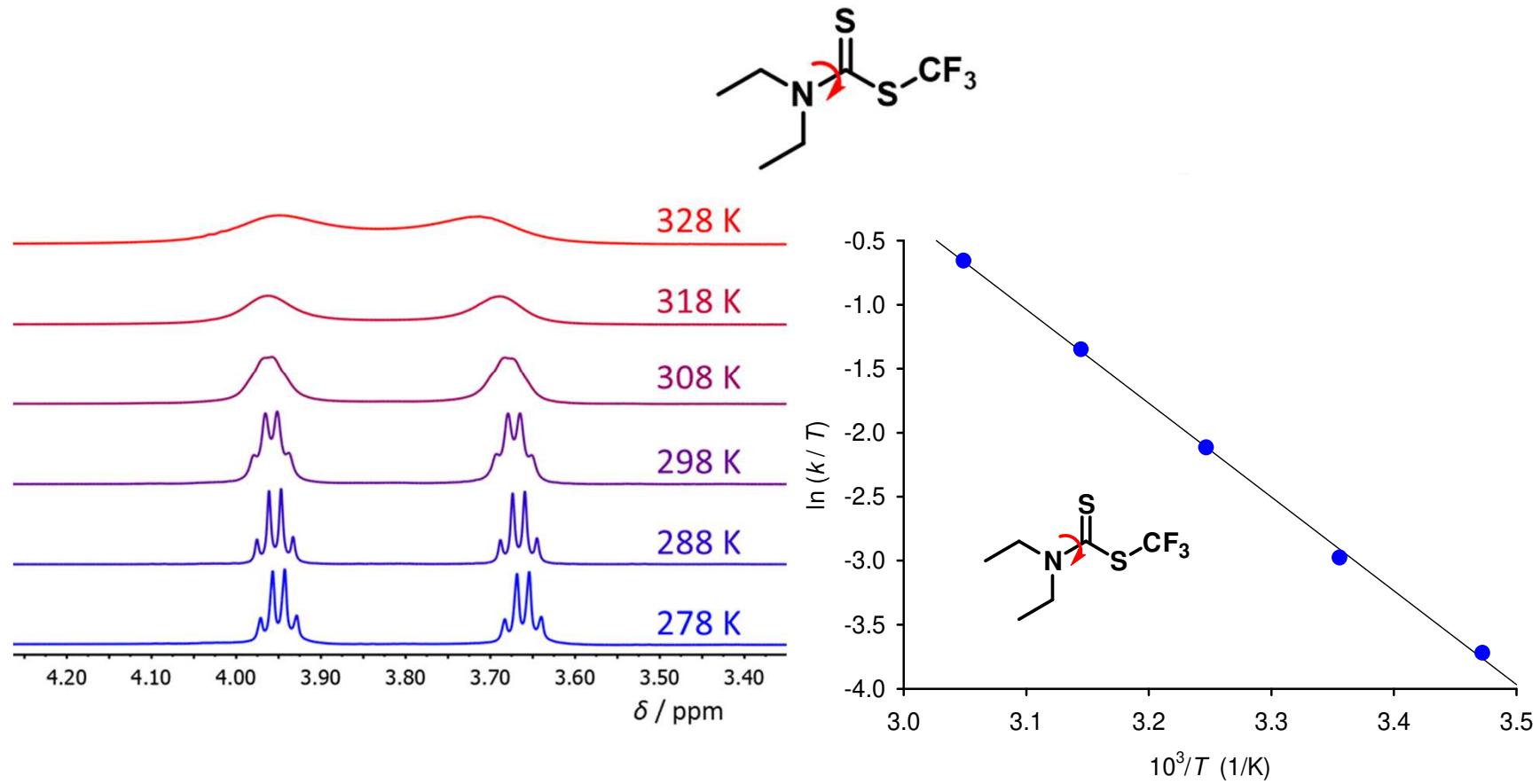
Chemical exchange



Chemical exchange



Chemical exchange

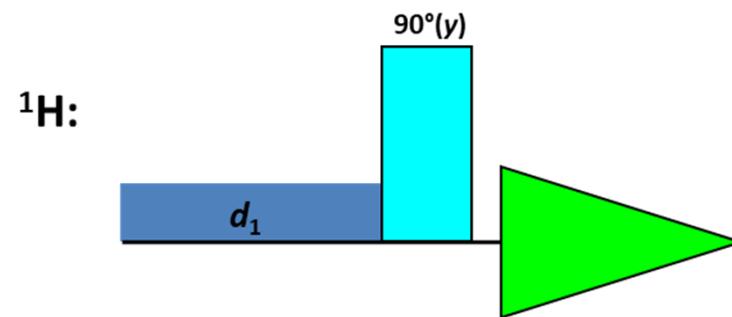


Solvent suppression

- Presaturation
- Relaxation
- Selective excitation

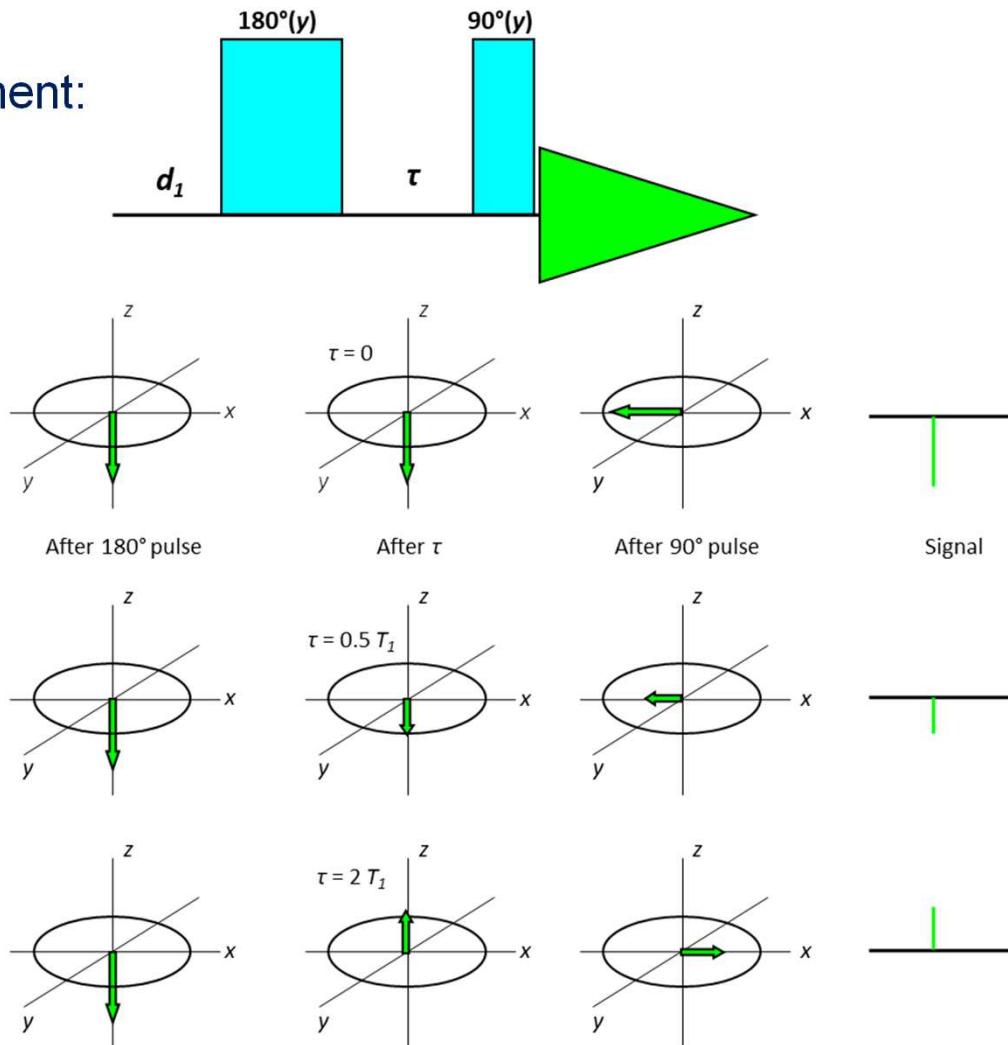
Solvent suppression

- Presaturation



Relaxation

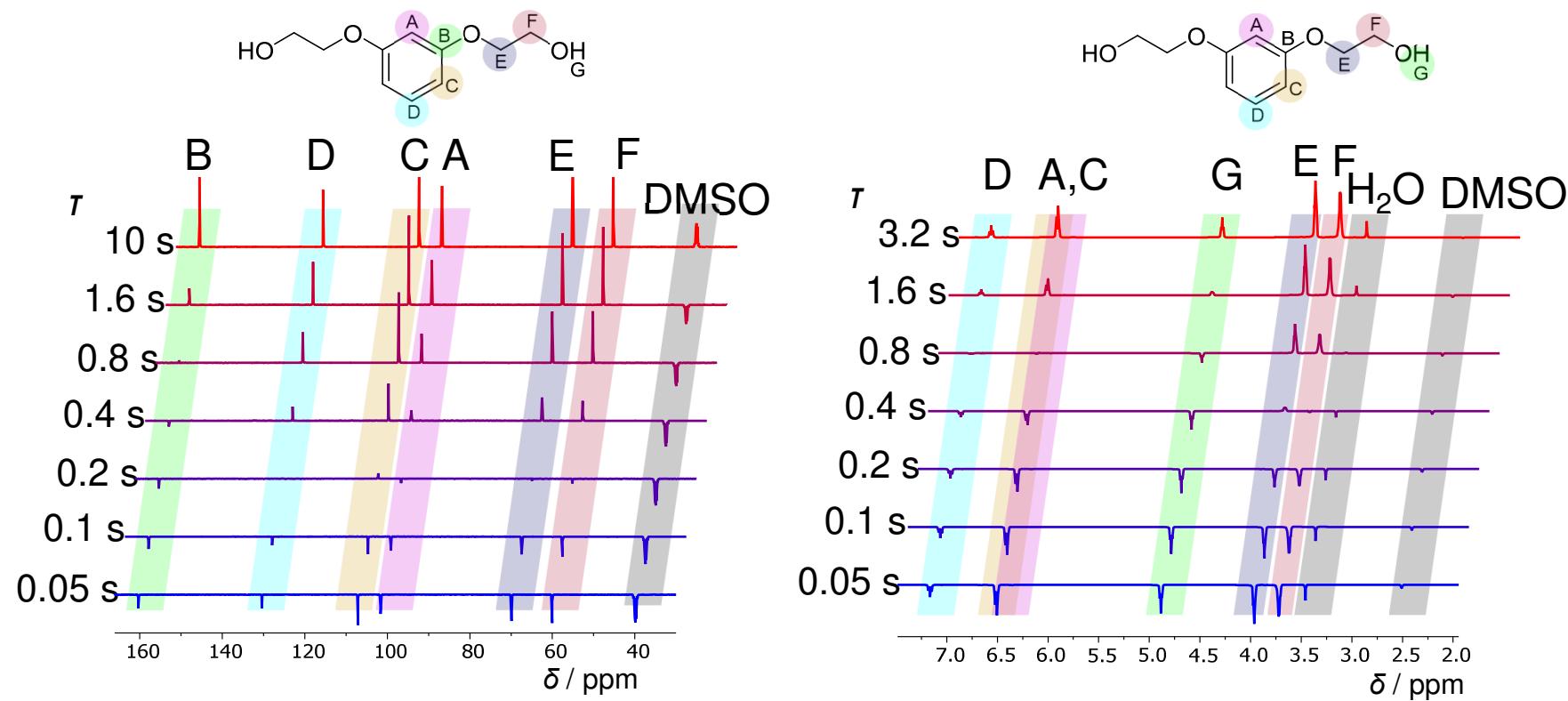
- Longitudinal (T_1) measurement:
inversion recovery



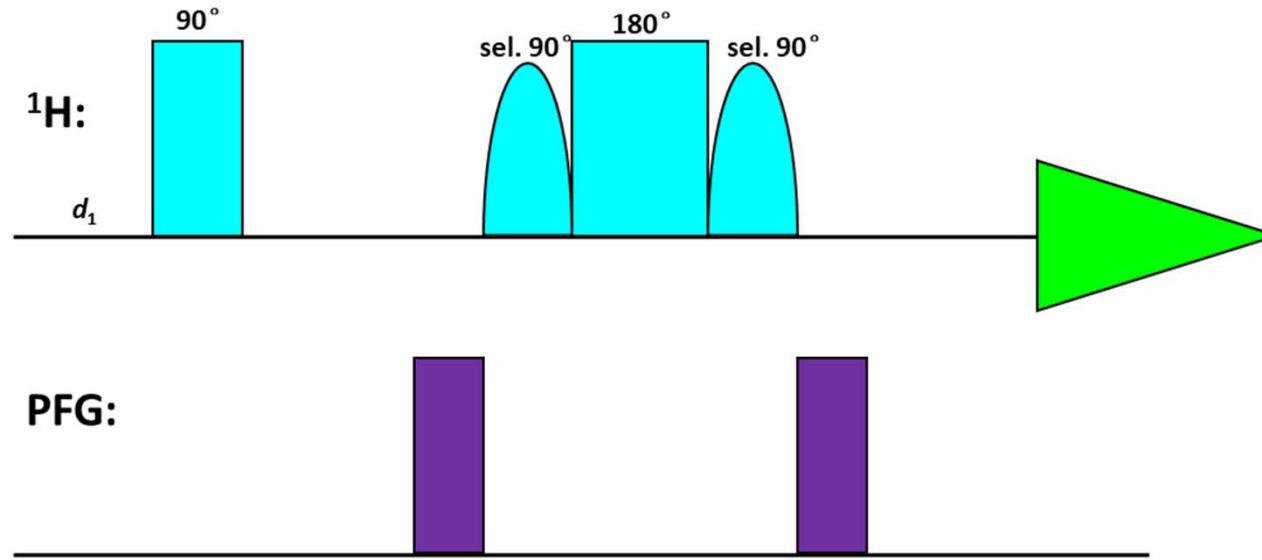
Relaxation

- Longitudinal (T_1) measurement: inversion recovery

$$\text{Ernst angle: } \cos \alpha = \exp(-t_r/T_1)$$



Selective pulses - WATERGATE



Vladimír Sklenář

Selective pulses - WATERGATE

