

Lec 3 – 16 Sept 2014

Shimming: how to achieve ppb line shapes?

[Clar 3.4.5]

300 Hz = 1 ppm → 0.3Hz = 1 ppb

- 1. solution purity is important – no floaters, no bubbles (filter if possible)**
- 2. better quality tubes: economy OK for low-field and automated shimming**
507 → 528 → 535 increasingly better tubes (high-field+H₂O suppression)

4. solution height is important → 3 × (coil length) [~45mm]

[Clar fig 3.47]

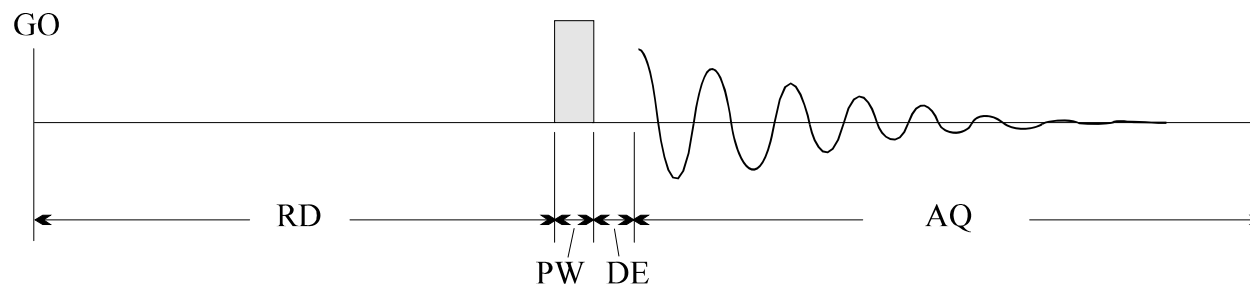
tubes

5. Manual shimming requires patience and practice

[guides + Clar fig 3.53]

shim set

The One-Pulse NMR Experiment



1. **RD [D1] \equiv relaxation delay, regrow M_z** [Clar 2.4.1]
2. **PW \equiv rf pulse of length PW μs nutate M into xy plane** [Clar 2.2.2]
3. **DE \equiv probe deadtime delay (μs) \rightarrow wait for rf pulse to ringdown**
4. **AQ \equiv acquisition of TD points at DW dwell [= 1/(2SW)]** [Clar 3.2.3]
5. **repeat DS + NS times**