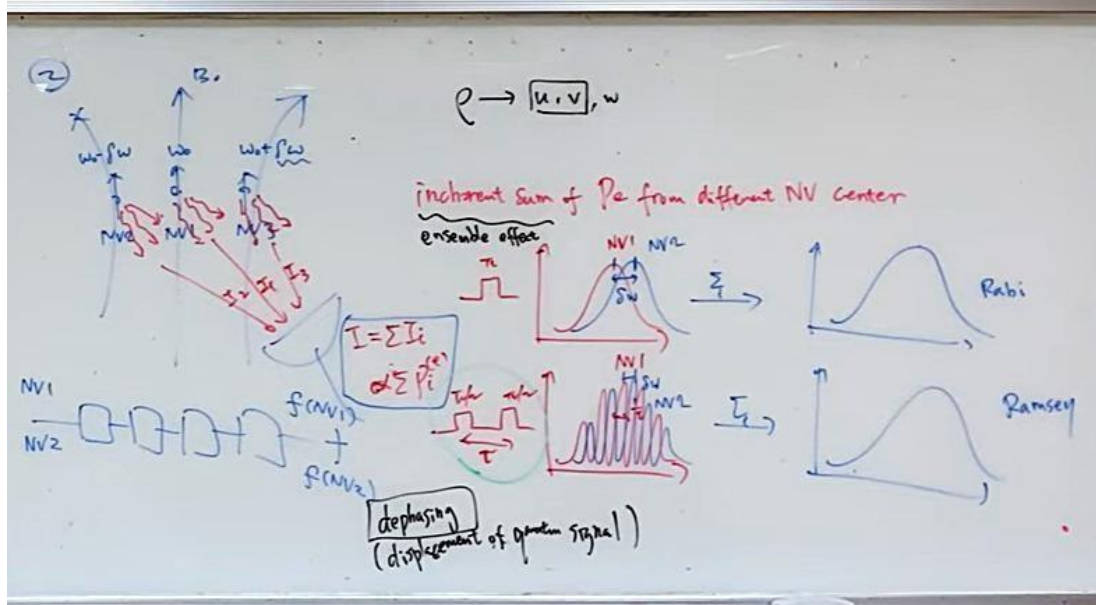
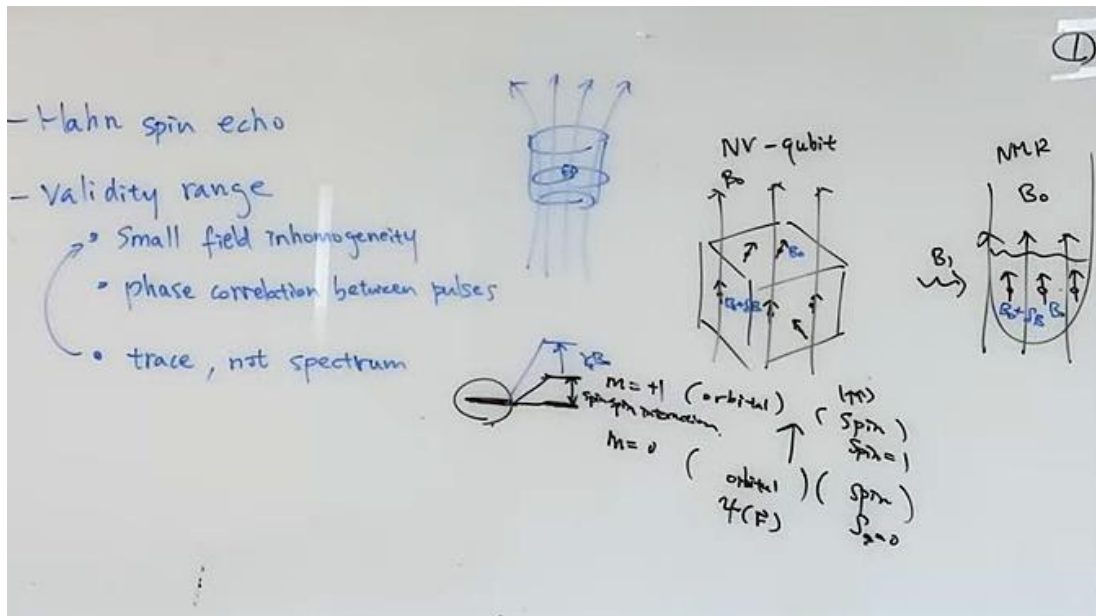


Lecture10 Hahn spin echo





Hahn

- Hahn spin echo

- Validity range

- Small field inhomogeneity
- phase correlation between pulses
- trace, not spectrum

lab frame.

rotating frame (ω_0)

rotating frame $\theta = \omega_0 t$ counter-clockwise

(Continuous) rotation transformation

$$\begin{pmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \\ 0 & 0 \end{pmatrix}$$
$$\begin{pmatrix} u \\ v \\ 1 \end{pmatrix}$$

NMR $\frac{d\vec{u}}{dt} = \gamma \vec{u} \times \vec{B}_0$

M-qubit $\frac{d\vec{Q}}{dt} = \gamma \vec{Q} \times \vec{B}_{eff}$

✓ - Hahn spin echo

- limitation

- ✓ • Small field inhomogeneity
- ✓ • phase correlation between pulses
- ✓ • trace, not spectrum

