

## Quantum Sensing

reduce uncertainty in measurement

$$\Delta \propto \frac{1}{\sqrt{N}}$$

$\curvearrowright$  no. of trials

② Stern-Gerlach

$$|\Psi\rangle = \cos \frac{\theta}{2} |S\rangle + e^{i\phi} \sin \frac{\theta}{2} |D\rangle$$

find this  $\Psi$ .

$\theta \rightarrow$  how far from 0 or 1

$\phi \rightarrow$  how far from axis.

Cohherence time is low  $\rightarrow$  superpos' doesn't last for long

relax from & dephases time.

$$|000\rangle + |111\rangle$$

$$\frac{1}{\sqrt{2}} \rightarrow N_F$$

shape

Emp :- I mean rank isn't enough! I

→ Her work :- Go beyond the Rayleigh limit  
(for distinguishing NV centers)

Kashini Saha