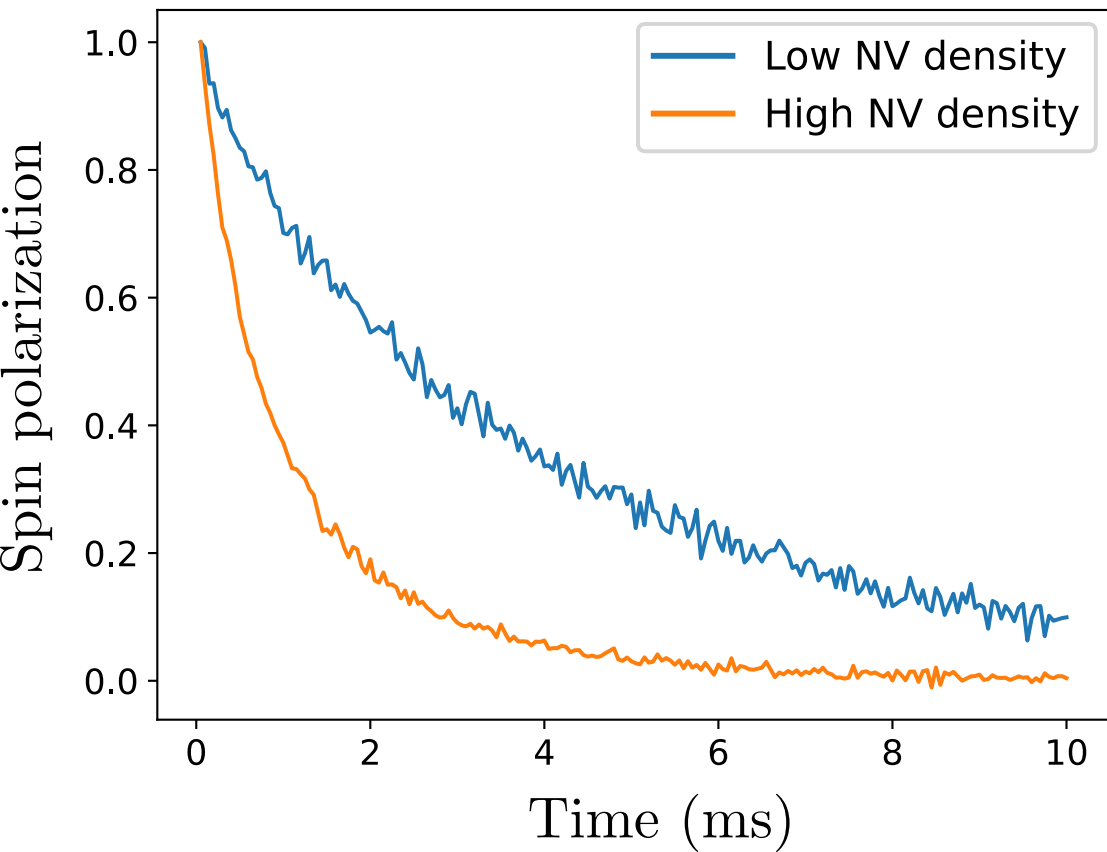


Spin polarization = difference in population between  $|0\rangle$  and  $|\pm 1\rangle$



When reaching a critical ( $\sim 1$  ppm) NV density :

- Lifetimes get shorter
- Polarization profile get non-exponential

Dipole-dipole coupling  $J \approx 30$  kHz for  $[NV]=3$  ppm  
 $\rightarrow J > 1/T_1$

Depolarization slower than the flip-flop rate