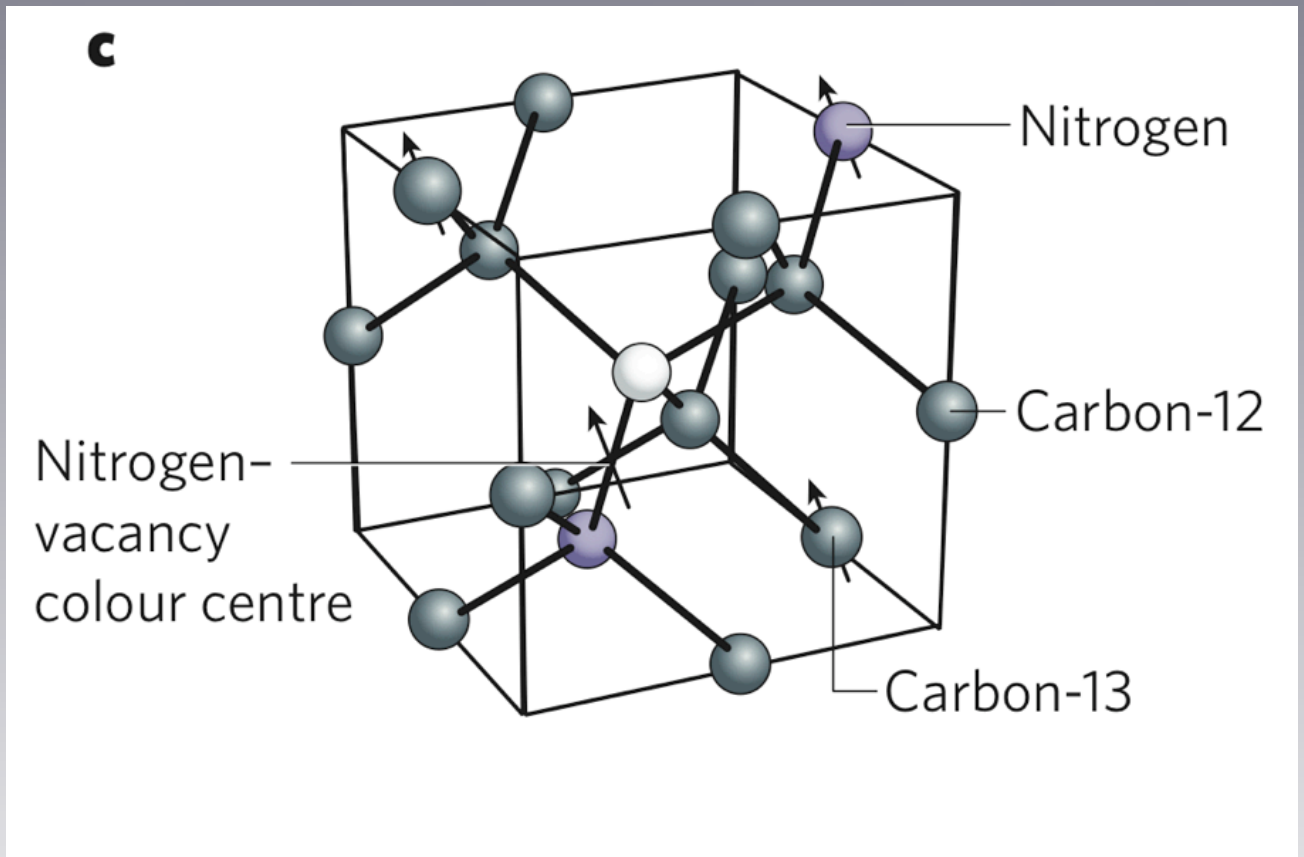
Quantum Information with Solid-State Devices

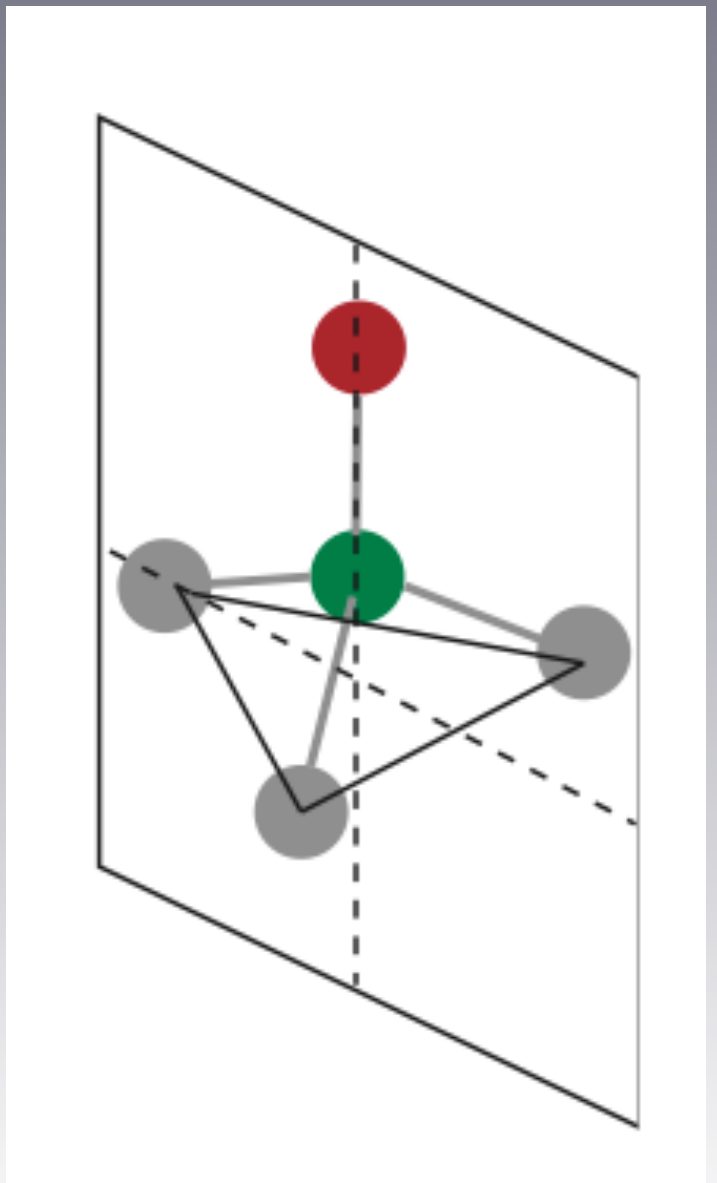
VO 141.246
SS2012

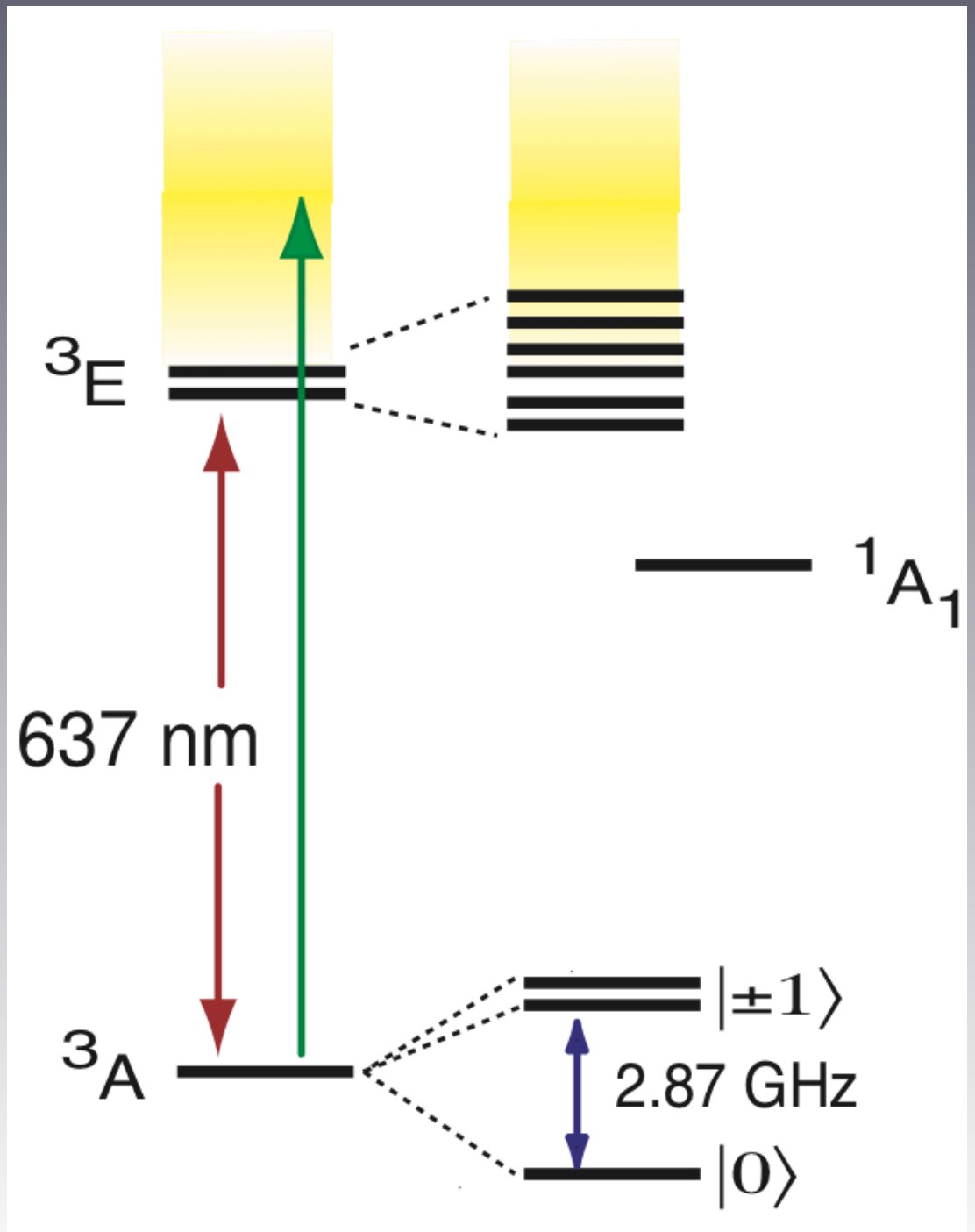
Dr. Johannes Majer

Lecture 10

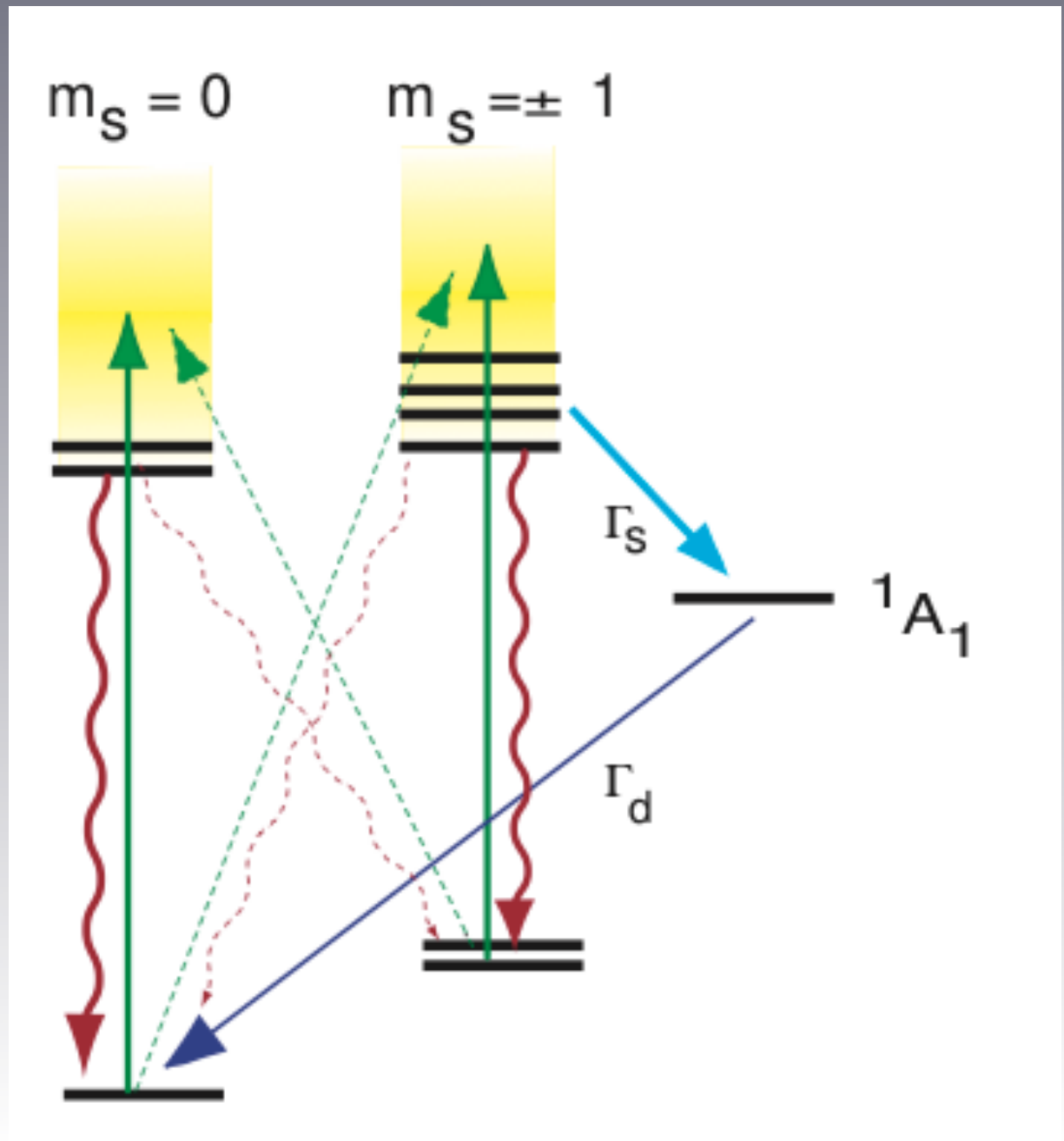
NV^- center


c
Nitrogen
Carbon-12
Nitrogen–
vacancy
colour centre
Carbon-13

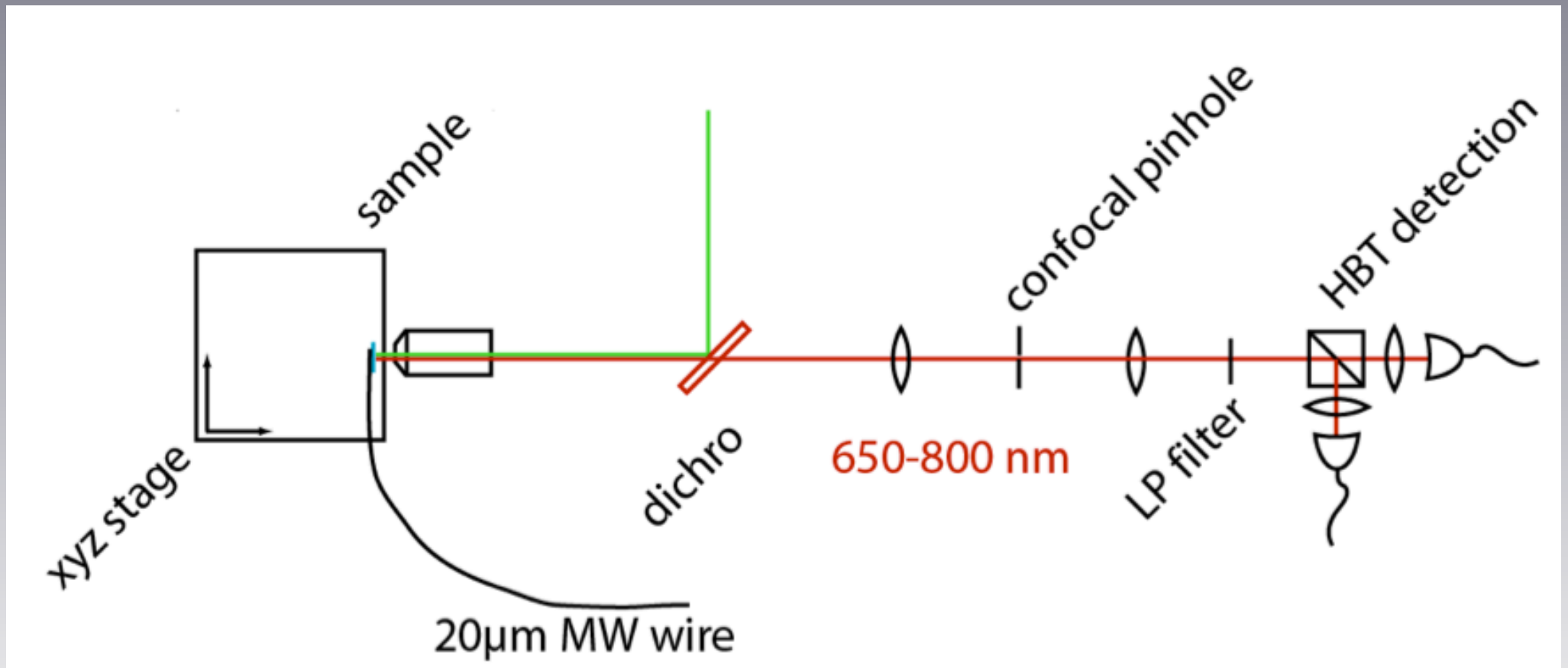



^3E
$^1A_1$
637 nm
^3A
$|\pm 1\rangle$
2.87 GHz
$|0\rangle$

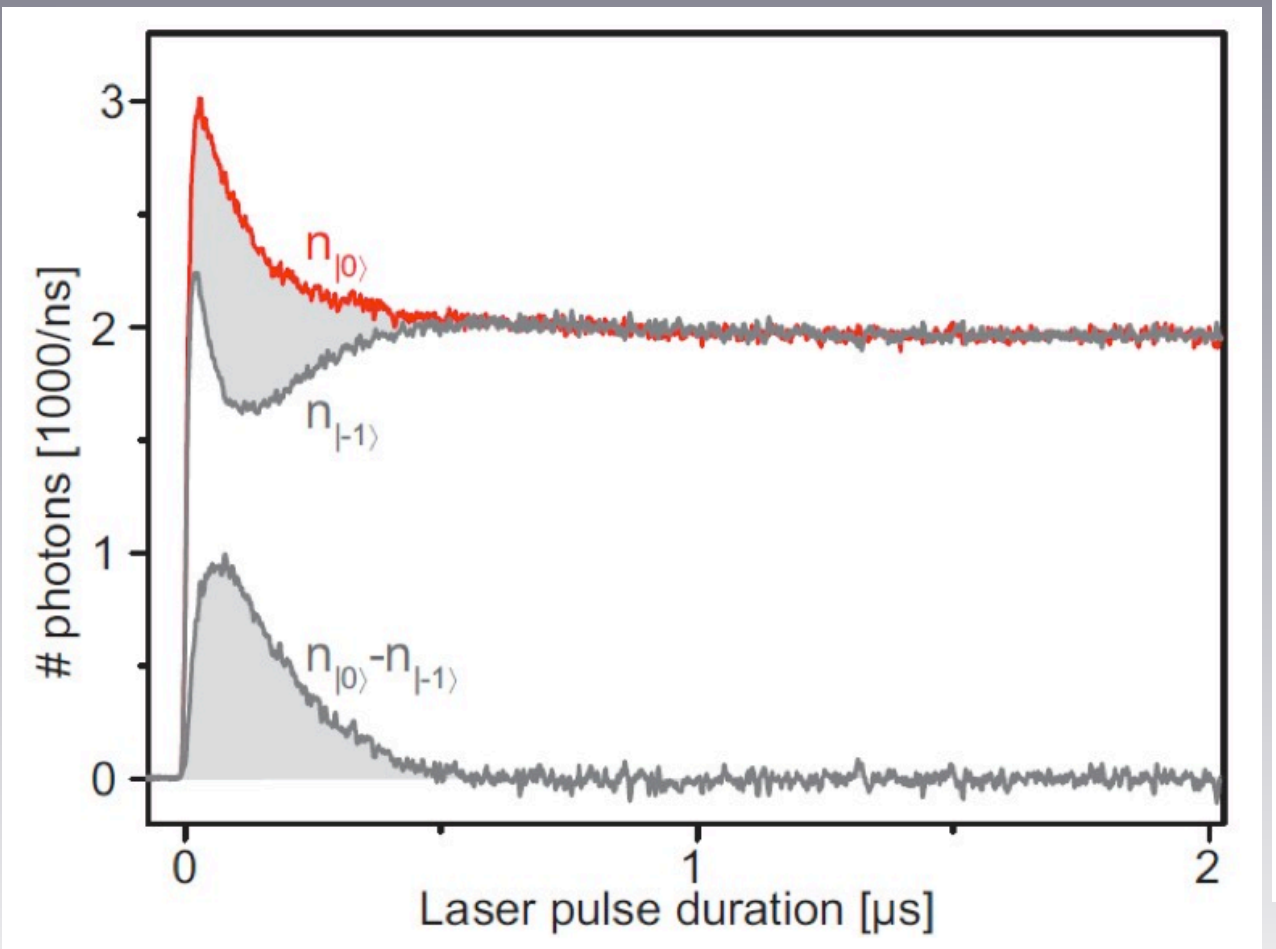
Spin Polarization

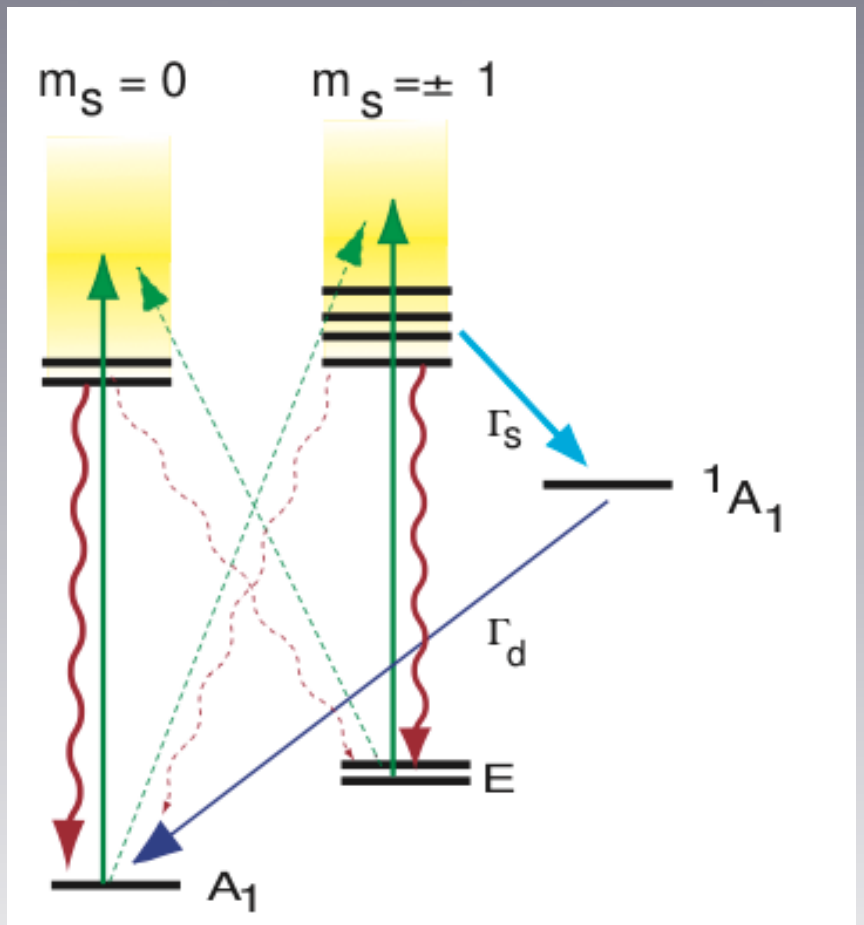


Measurement Setup

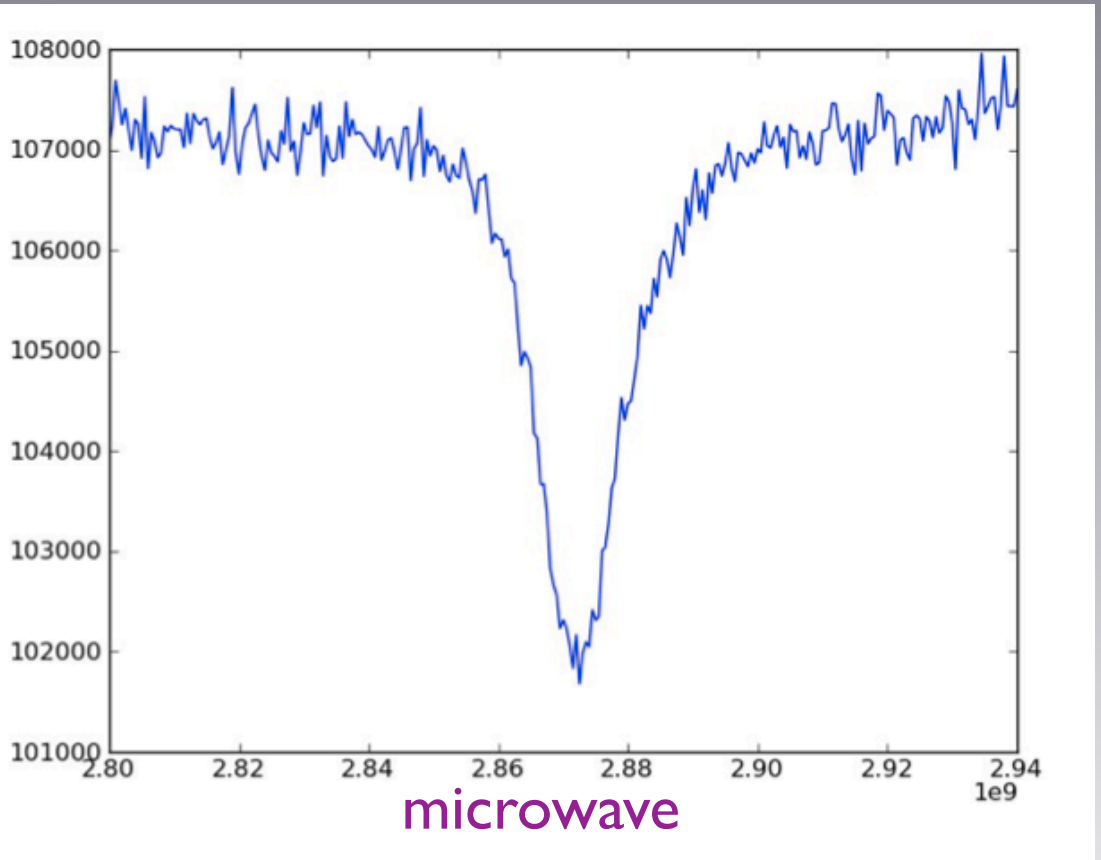


Polarization

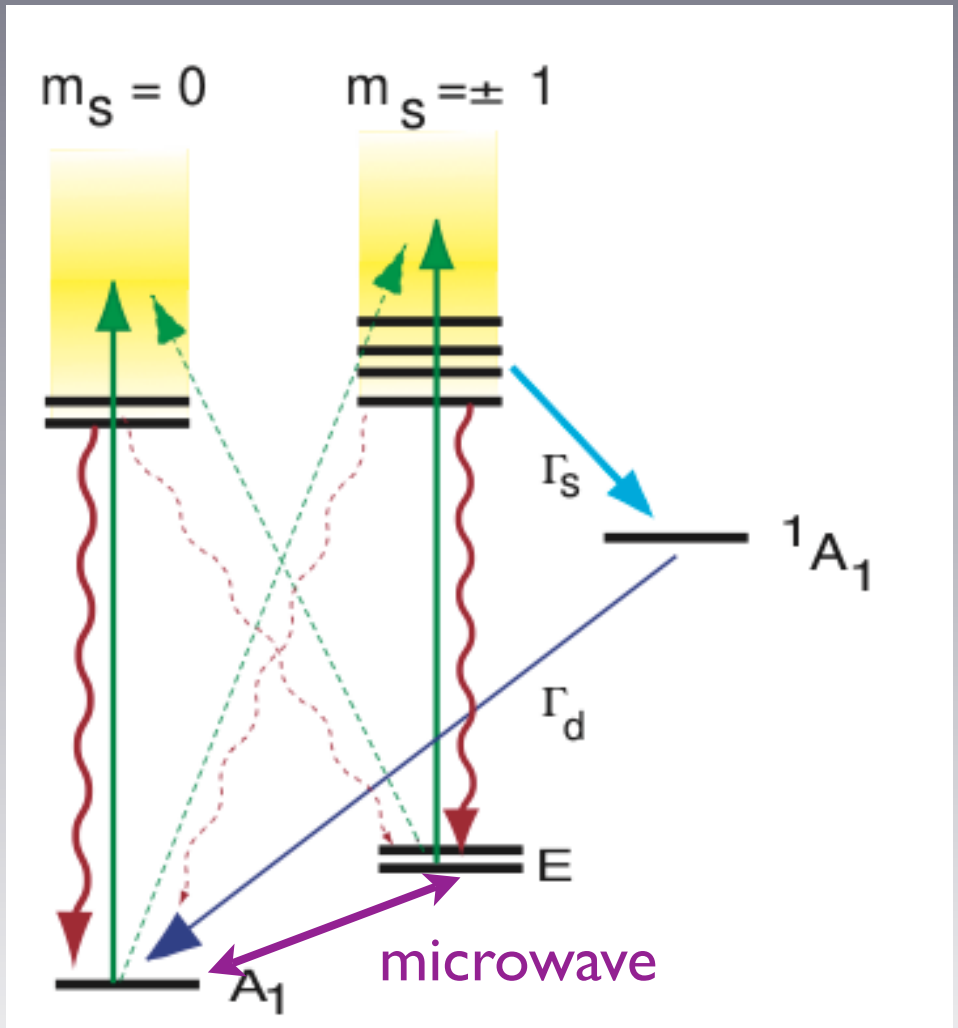


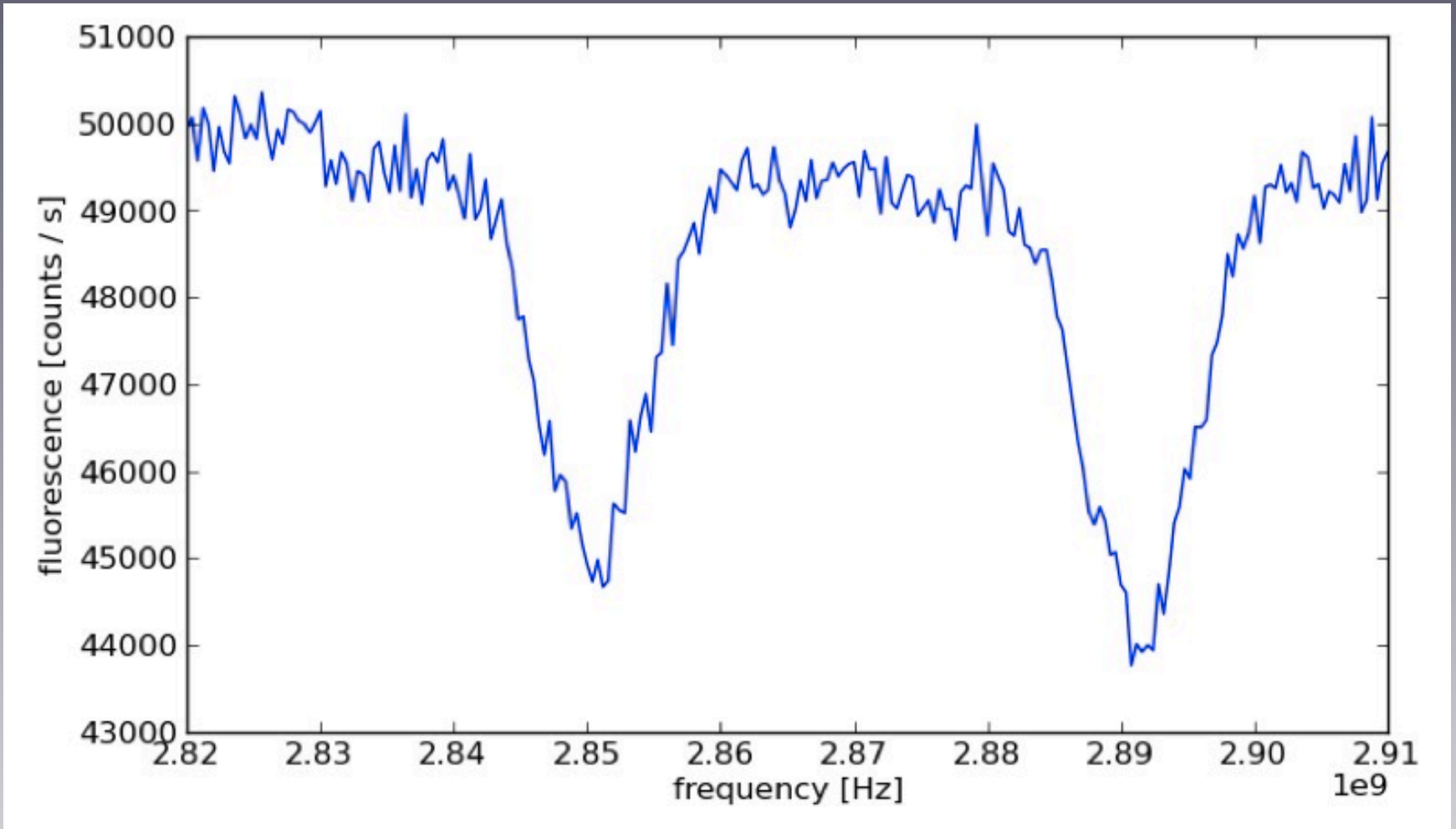


Microwave Spectroscopy



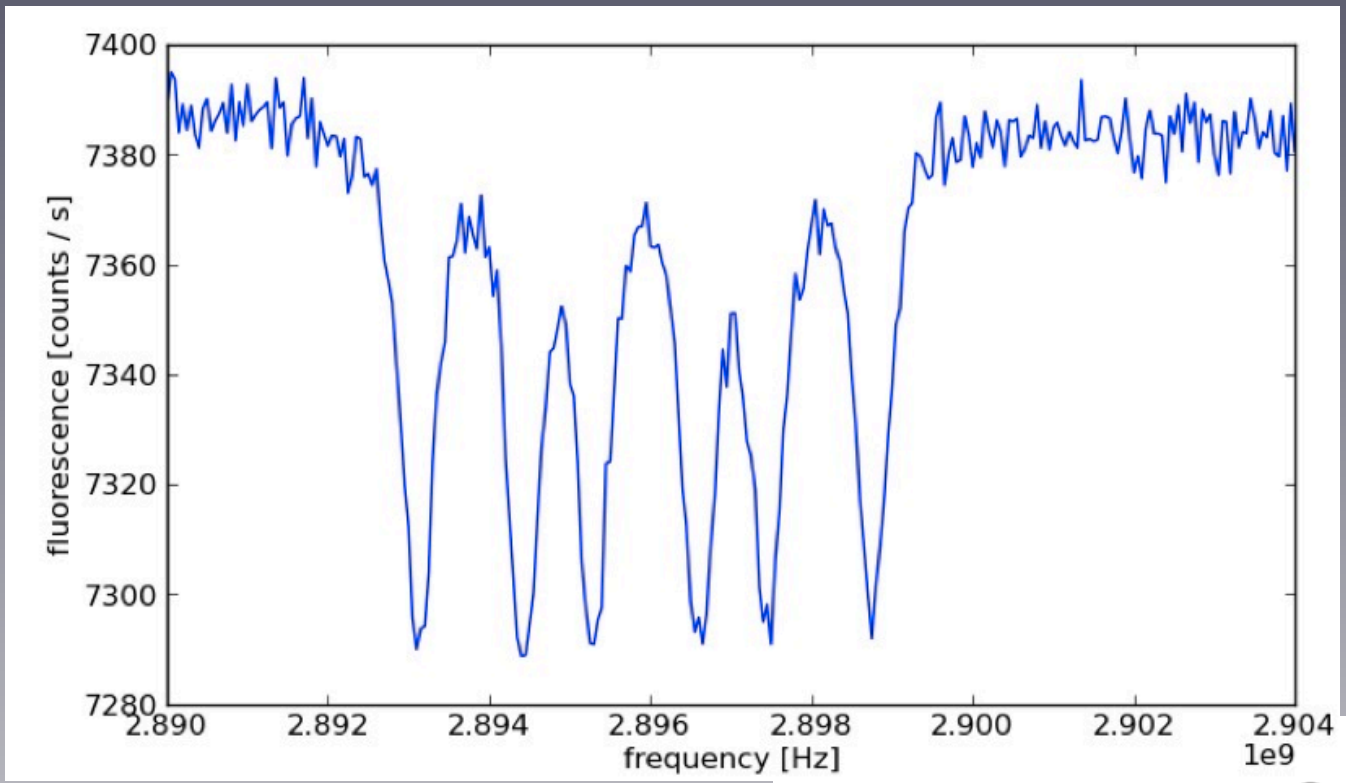
Derntl, Putz, Nöbauer





Zeeman Splitting

$$\hbar\omega = D \pm g_L \mu_B B \cos(\theta)$$



^{14}N: I=1

^{13}C: I=1/2