

# Bayesian Reinforcement Learning Methods

## Using Bayesian MDPs and GPTD Methods

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# NMR measures the magnetic moment of nuclei

- A nucleus with magnetic moment  $\mu = \gamma \mathbf{I}$  in a magnetic field  $\mathbf{B} = B_0 \hat{z} + B_1 \sin \omega t \hat{x}$  precesses about the  $z$  axis with Larmor frequency

$$f = \gamma B_0. \quad (1)$$

- If we apply an RF pulse for time  $\frac{\pi}{\gamma B_1}$ , we can rotate the moment by  $90^\circ$  into the  $xy$  plane and observe the precessing magnetization.