









|                                      | 15ms   | 5ms   | $t_p$   | 5ms   | $t_p$   |
|--------------------------------------|--|---|---|---|---|
| polarization gradient cooling        |  |   |   |   |   |
| $\sigma^+$ polarization dipole field |  |   |   |   |   |
| $\sigma^-$ polarization dipole field |  |   |   |   |   |
| magnetic field                       |  |  |   |   |   |
| optical pumping to $F=2, m_F=-2$     |  |  |   |   |   |
| optical pumping to $F=1$             |  |   |   |  |   |
| probe field                          |  |   |  |   |  |