

# SPINS Lab 2

Quantum Mechanics

Fall 2019

## Table templates

Unknown state  $|\psi_1\rangle$

Probabilities	Axis		
Result	$x$	$y$	$z$
Spin up $\uparrow$			
Spin down $\downarrow$			

Unknown state  $|\psi_2\rangle$

Probabilities	Axis		
Result	$x$	$y$	$z$
Spin up $\uparrow$			
Spin down $\downarrow$			

Unknown state  $|\psi_3\rangle$

Probabilities	Axis		
Result	$x$	$y$	$z$
Spin up $\uparrow$			
Spin down $\downarrow$			

Unknown state  $|\psi_4\rangle$

Probabilities	Axis		
Result	$x$	$y$	$z$
Spin up $\uparrow$			
Spin down $\downarrow$			

State  $|\psi\rangle$  with magnet  $B = \underline{\hspace{2cm}}$

Probabilities	Axis		
Result	$x$	$y$	$z$
Spin up $\uparrow$			
Spin down $\downarrow$			

## Spin 1/2 Interferometer

Beams used		Experiment		Theory	
SG1	SG2	$\mathcal{P}_+$	$\mathcal{P}_-$	$\mathcal{P}_+$	$\mathcal{P}_-$
$ +\rangle$	$ +\rangle_x$				
	$ -\rangle_x$				
	$ +\rangle_x,  -\rangle_x$				
$ -\rangle$	$ +\rangle_x$				
	$ -\rangle_x$				
	$ +\rangle_x,  -\rangle_x$				