

Spin	Linear Transformation L			Antilinear Transformation A			
	$b_i \longrightarrow b'_i = L_{ij}b_j$			$b_i \longrightarrow b'_i = A_{ij}b_j^*$			
Observable	$\tilde{\Gamma}_4$	$\tilde{\Gamma}_{10}$	$\tilde{\Gamma}_{12}$	$\tilde{\Gamma}_6$	$\tilde{\Gamma}_8$	$\tilde{\Gamma}_{13}$	$\tilde{\Gamma}_{15}$
$\sigma(\theta)$	+	+	+	+	+	+	+
Σ	+	+	+	+	+	+	+
T	+	+	+	+	+	+	+
P	+	+	+	+	+	+	+
G	-	-	+	+	-	+	-
H	-	-	+	-	+	-	+
E	-	-	+	-	+	-	+
F	-	-	+	+	-	+	-
O_x	-	+	-	-	-	+	+
O_z	-	+	-	+	+	-	-
C_x	-	+	-	+	+	-	-
C_z	-	+	-	-	-	+	+
T_x	+	-	-	+	-	-	+
T_z	+	-	-	-	+	+	-
L_x	+	-	-	-	+	+	-
L_z	+	-	-	+	-	-	+

Set Suppose we measure 7 observables that shown in red boxes ($4S + G, F, O_x$).

S This observables are not invariant under L transformations (columns 1 to 3) (see red boxes, the signs become negative). So far so good.

BT However, there exists one anti-linear transformation under which the 7 observables remain invariant. That's shown in col. 6. Then we need one

BR more observable that changes under this transformation. Observables shown in blue boxes change sign, hence they are the possible choices for the 8th observable. They are -

TR (O_z, C_x, T_x and L_z).

This table shows the possible candidates for the 8th observable (shown as circles), given 3 initially selected double-spin measurements (shown as X) on top of the 4 S types.

For the initial measurements (4S + G,F,Ox), the possible candidates are (C_x, T_x and L_z), consistent with the my prediction on previous slide (except for O_z)

<i>G</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>H</i>	X	X	X	X	X	X	X	X																	<i>BT</i>
<i>E</i>									X	X	X	X	X	X	X	X									
<i>F</i>																	X	X	X	X	X	X	X	X	
<i>O_x</i>	X		O		O	O	O	O	X	O	O	O	O	O	O	O	X		O		O			O	
<i>O_z</i>		X		O	O	O	O	O	O	X	O	O	O	O	O	O		X		O		O	O		<i>BR</i>
<i>C_x</i>	O		X		O	O	O	O	O	O	X	O	O	O	O	O	O		X			O	O		
<i>C_z</i>		O		X	O	O	O	O	O	O	O	X	O	O	O	O		O		X	O			O	
<i>T_x</i>	O	O	O	O	X	O	O	O	O	O	O	O	X		O		O			O	X		O		
<i>T_z</i>	O	O	O	O	O	X	O	O	O	O	O	O		X	O			O	O			X		O	<i>TR</i>
<i>L_x</i>	O	O	O	O	O	O	X	O	O	O	O	O	O		X			O	O		O		X		
<i>L_z</i>	O	O	O	O	O	O	O	X	O	O	O	O		O	X		O			O	O			X	