

SALC

An Orbital Arrangement Game

By
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& Madalyn Radlauer, PhD

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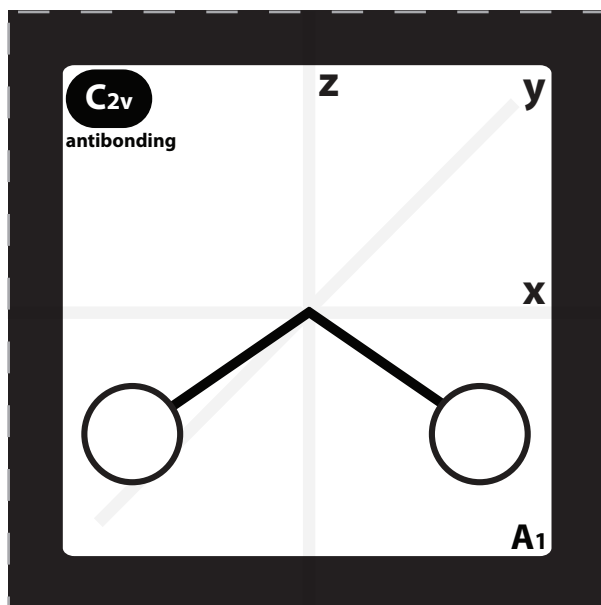
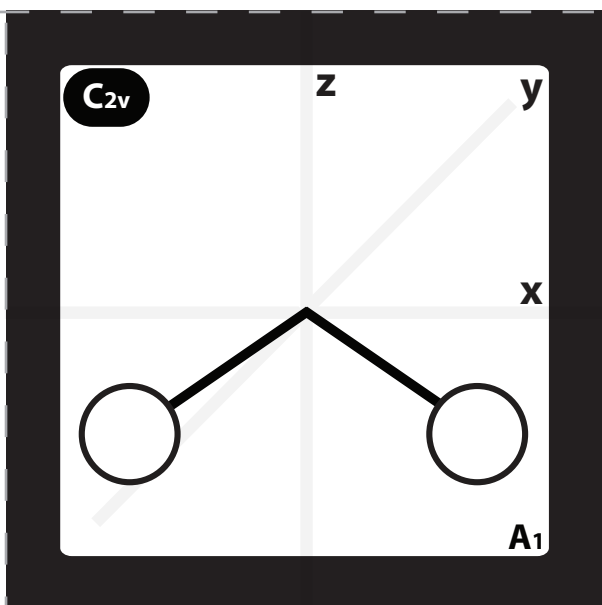
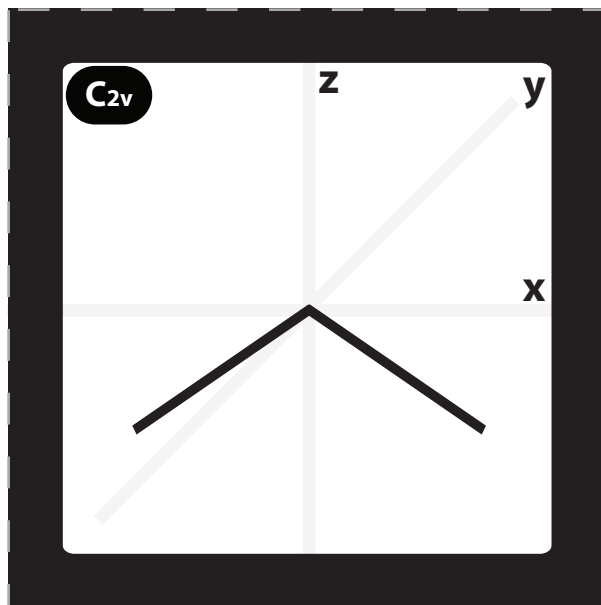
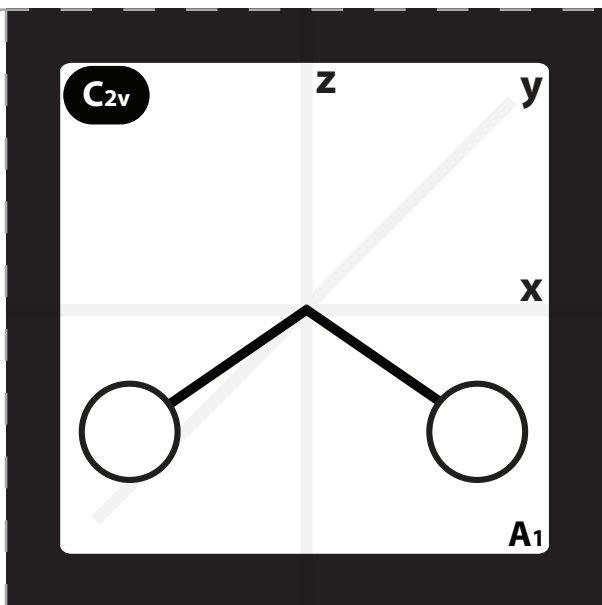
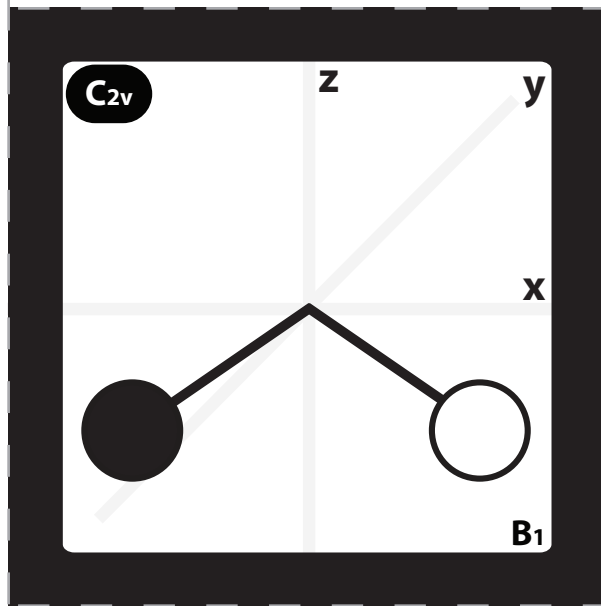
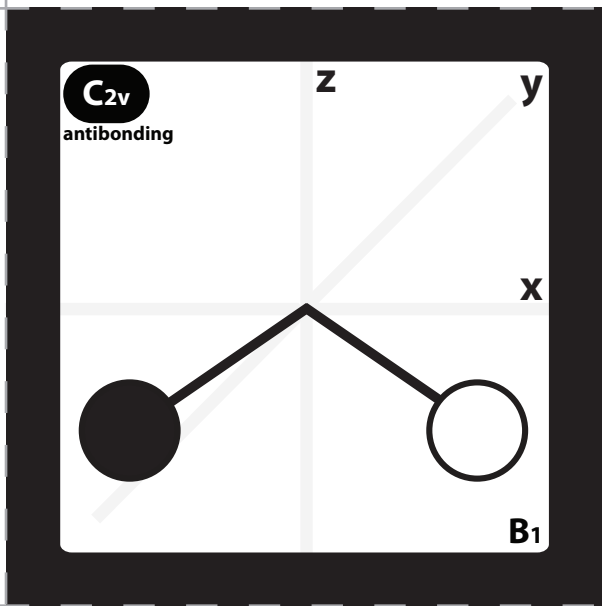
- Mass produce this game for events
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Instructions: Print all pages double sided (the pages are laid out for you to print in one go). After printing, cut the cards along the dash lines. Use a paper trimmer and cut directly on the dash line. We recommend using glossy white paper between 150 gsm and 300 gsm.

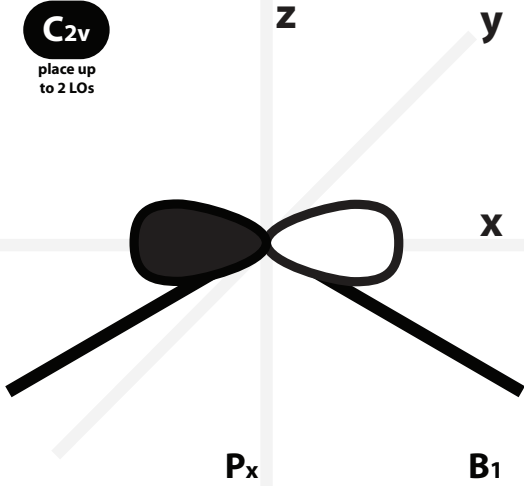
Instructions: Print all pages double sided (the pages are layed out for you to print in one go). After printing, cut the cards along the dash lines. Use a paper trimmer and cut directly on the dash line. We reccommend using glossy white paper between 150 gsm and 300 gsm.

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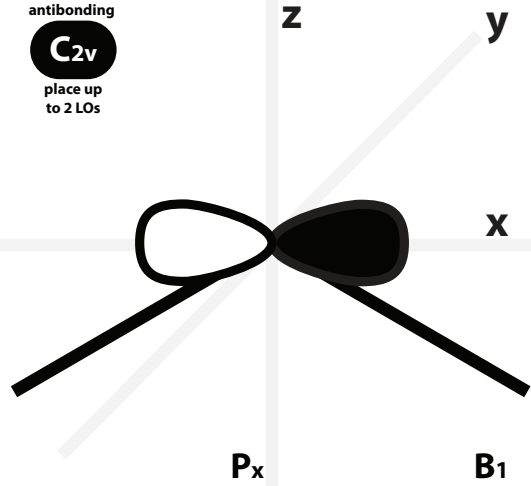
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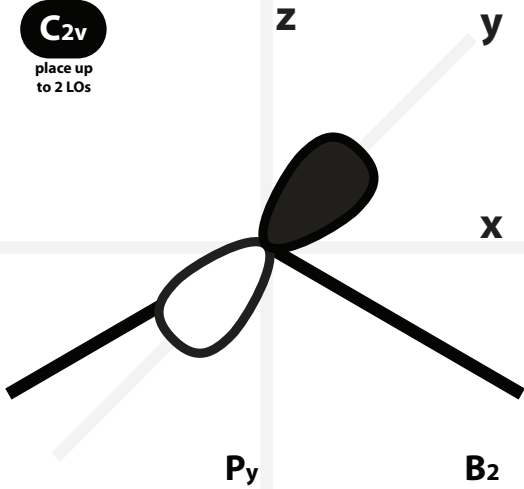
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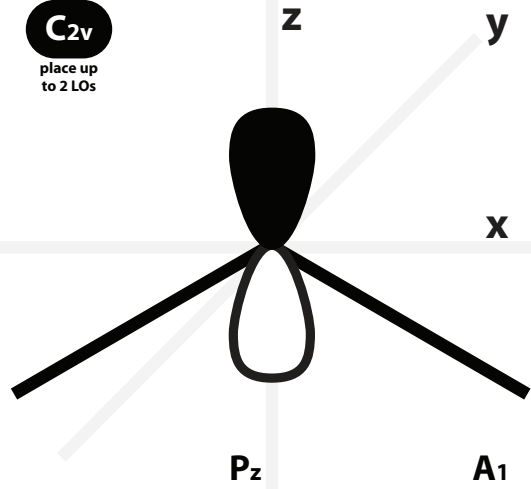
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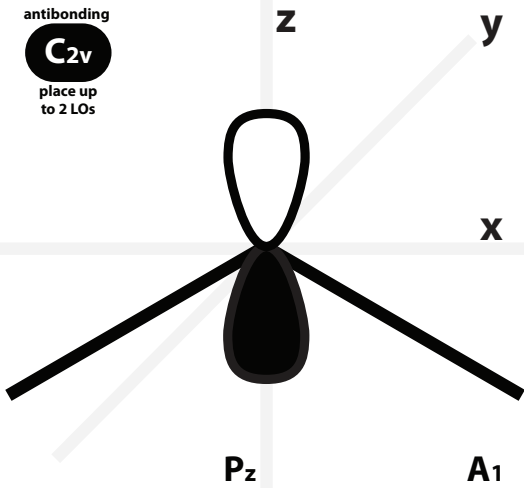
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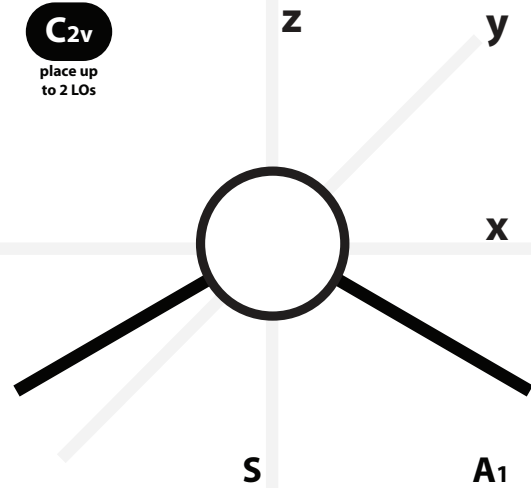
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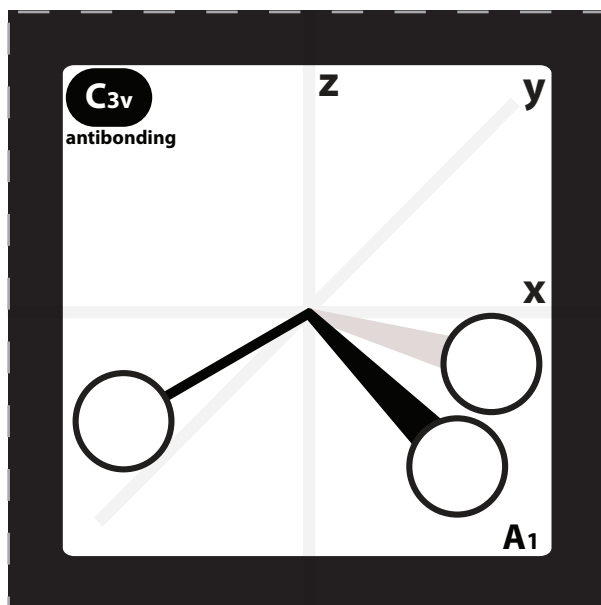
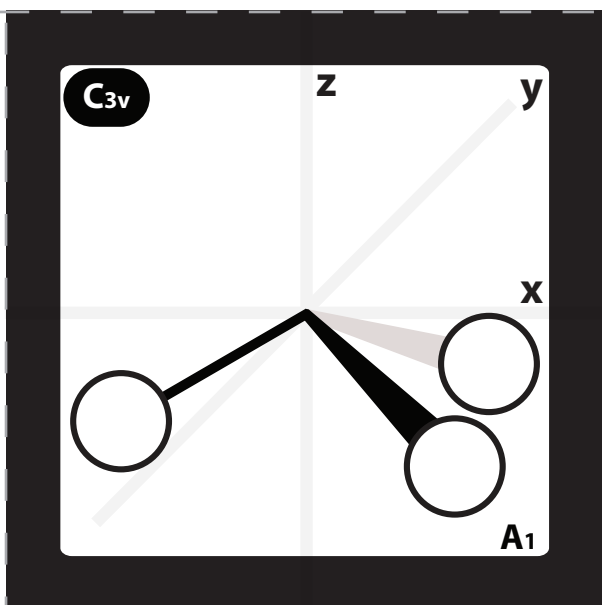
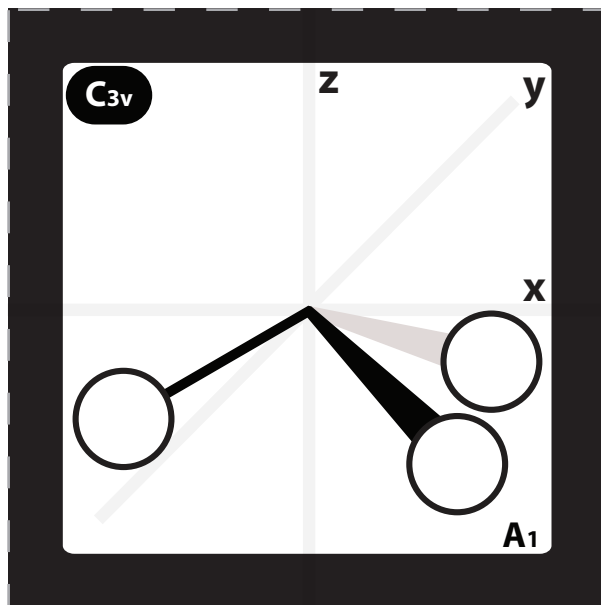
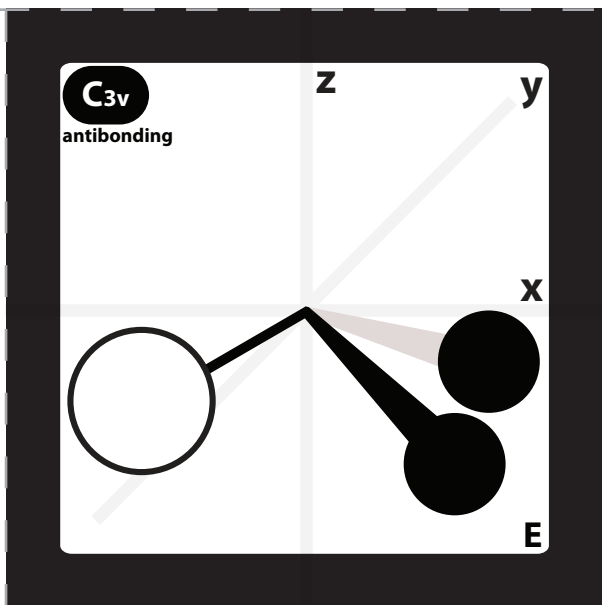
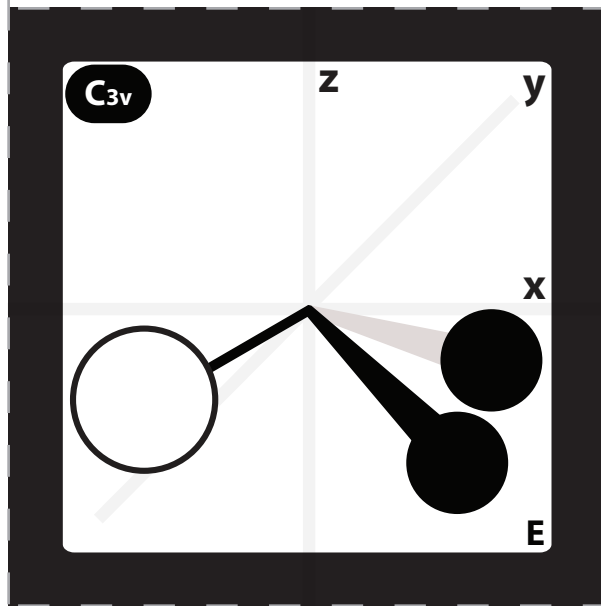
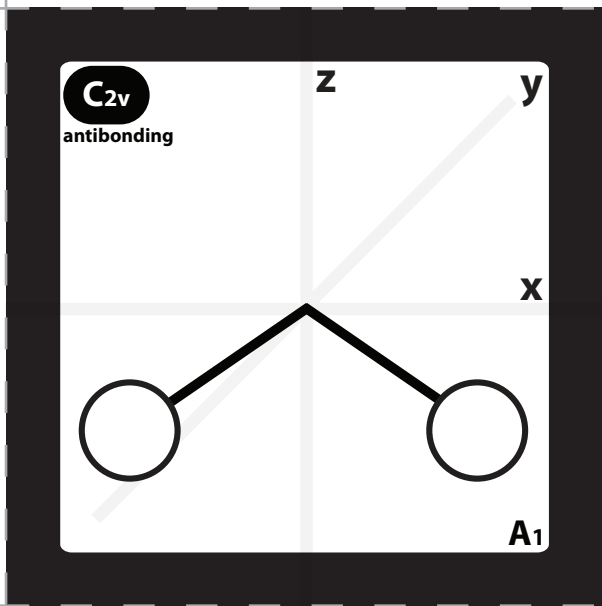


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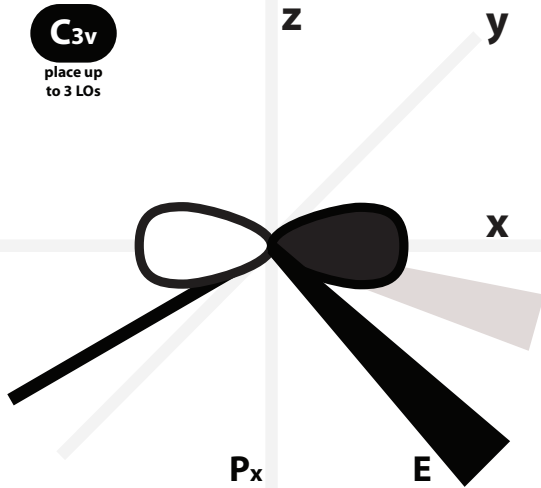


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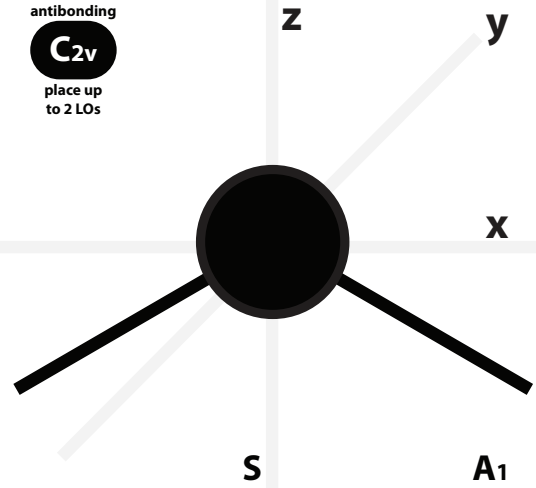




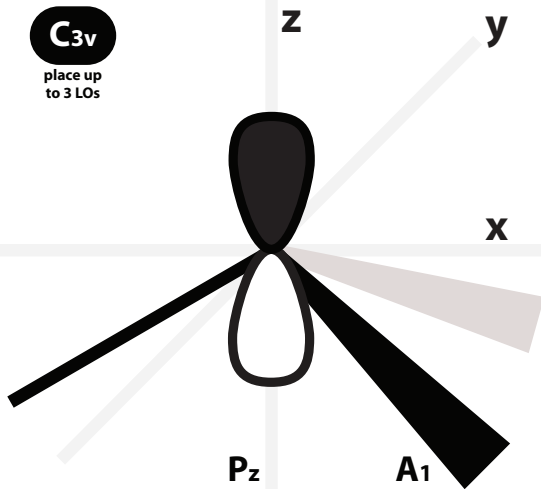
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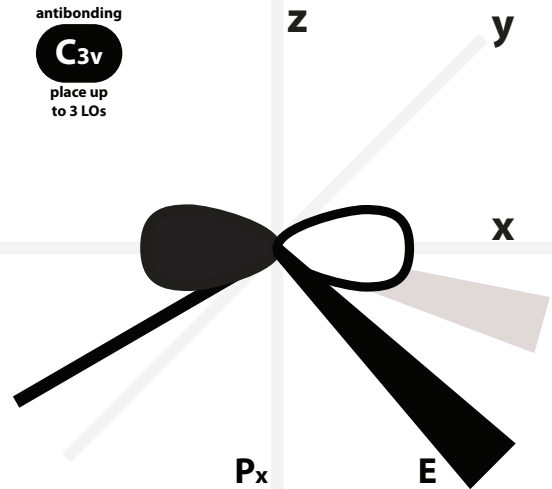
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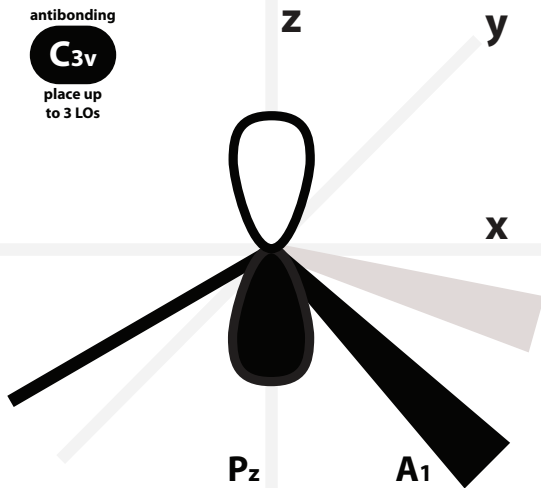
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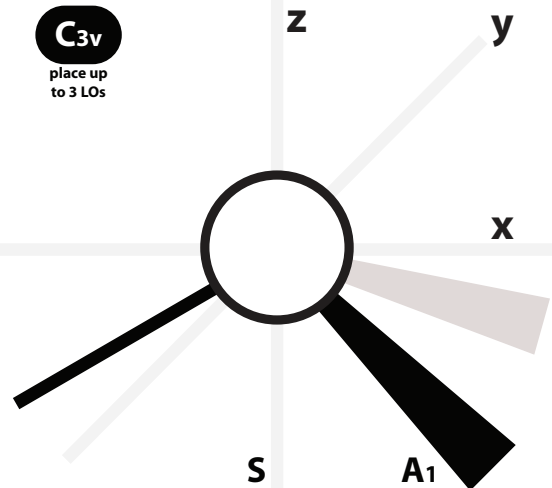
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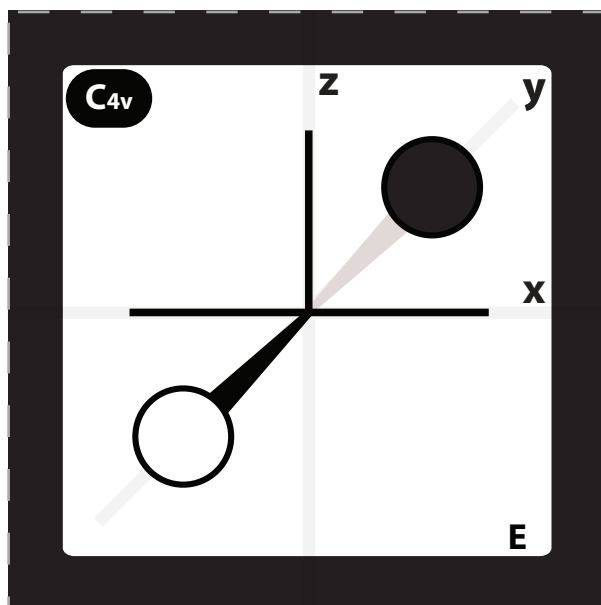
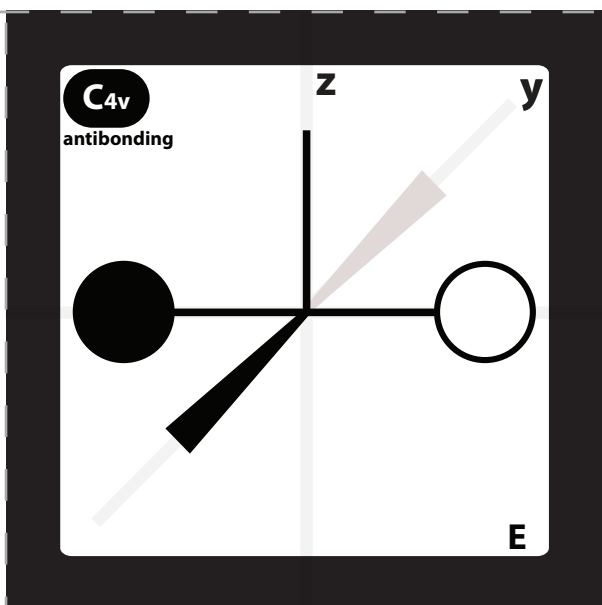
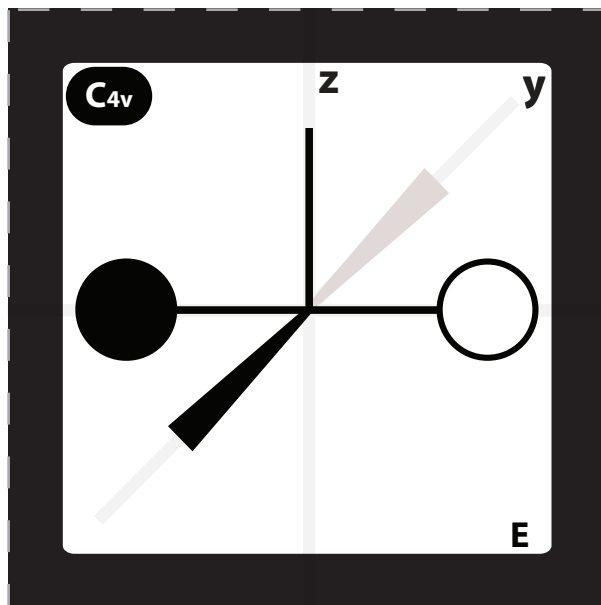
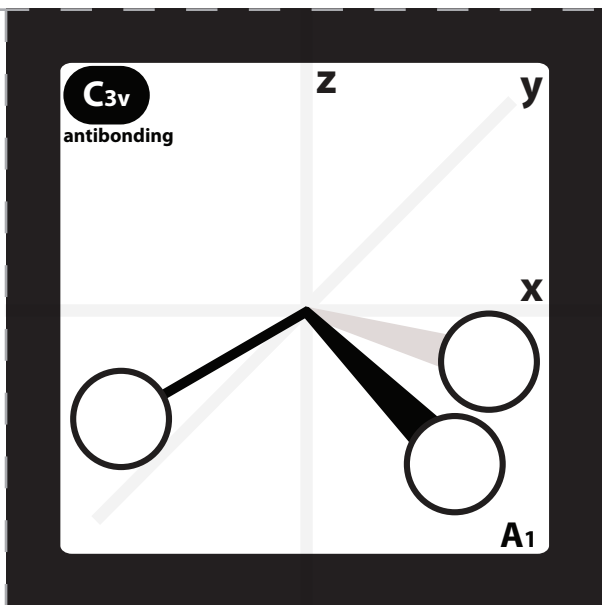
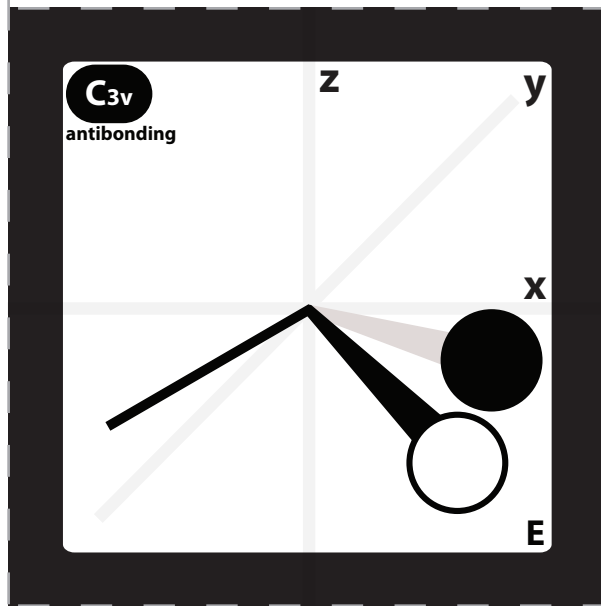
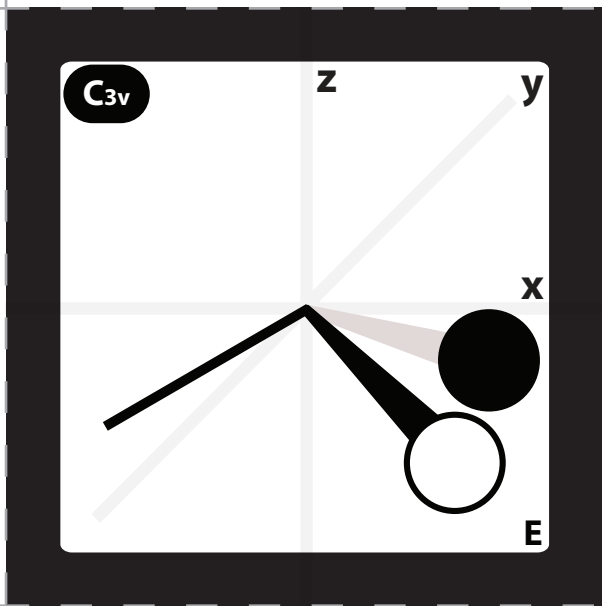


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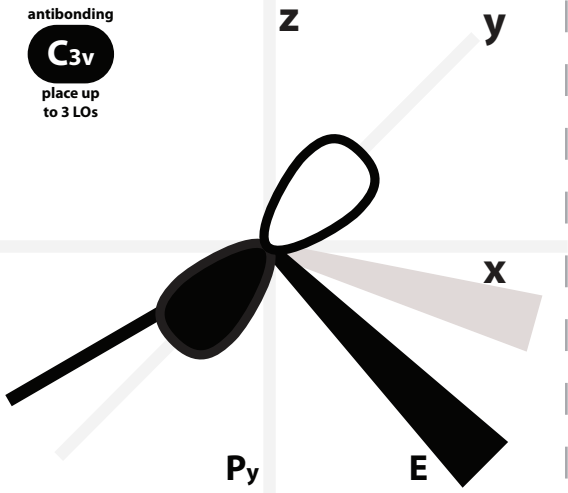


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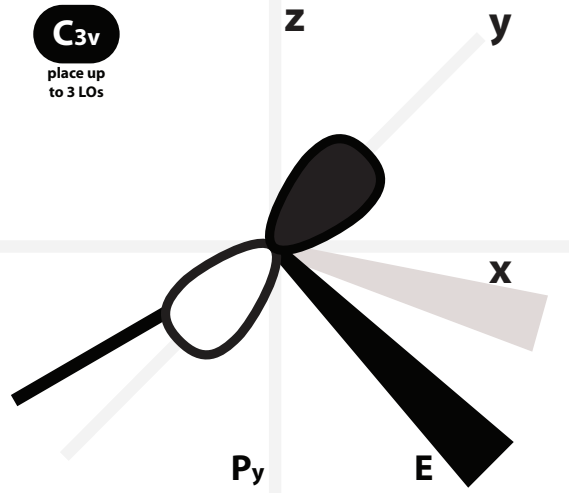




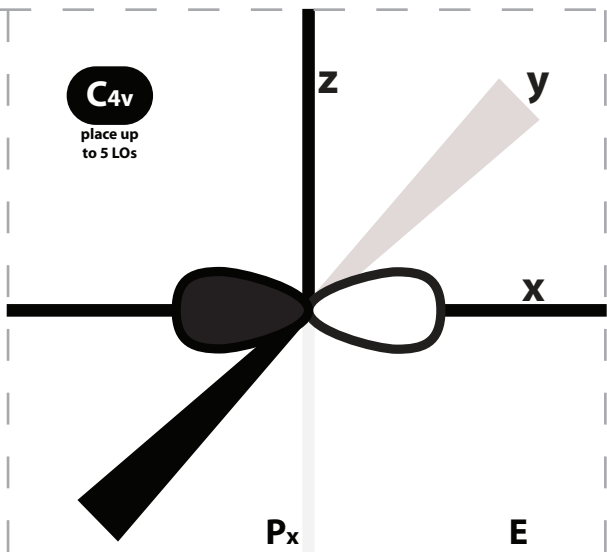
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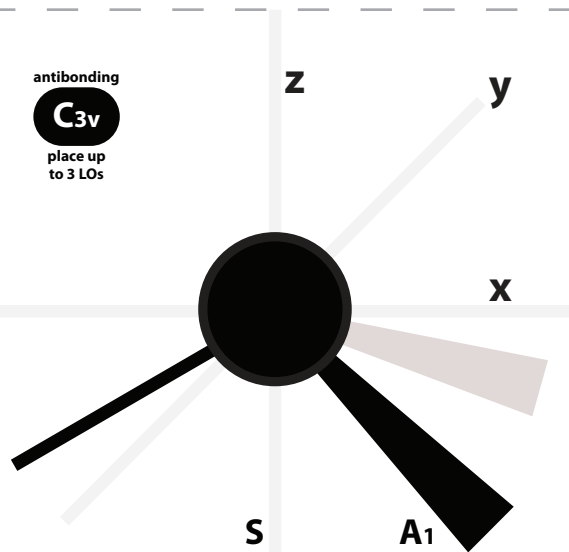
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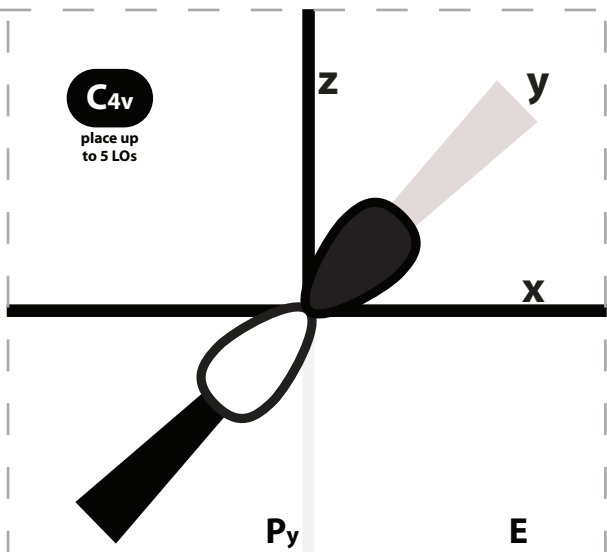
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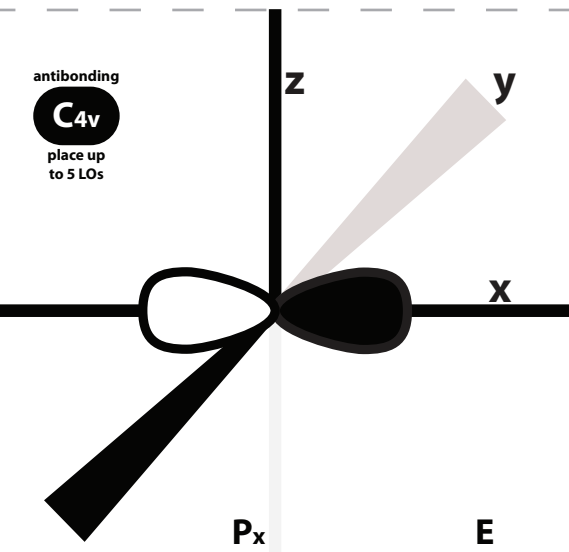
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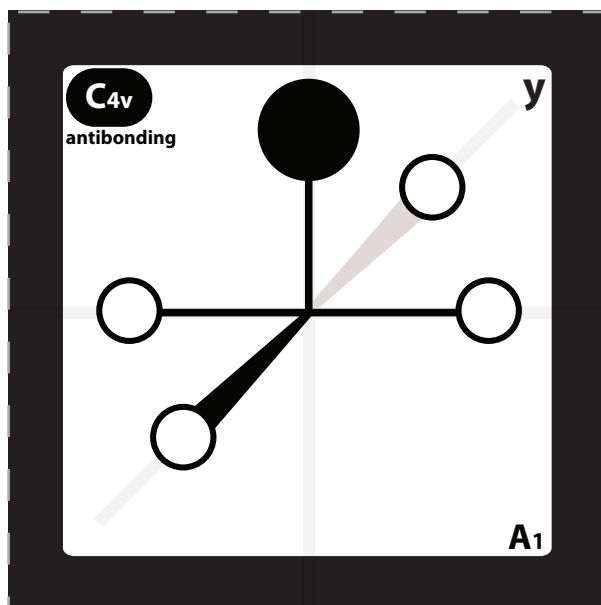
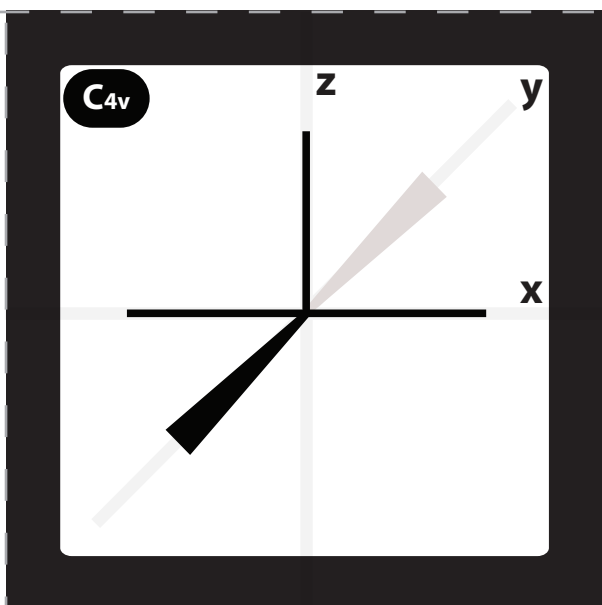
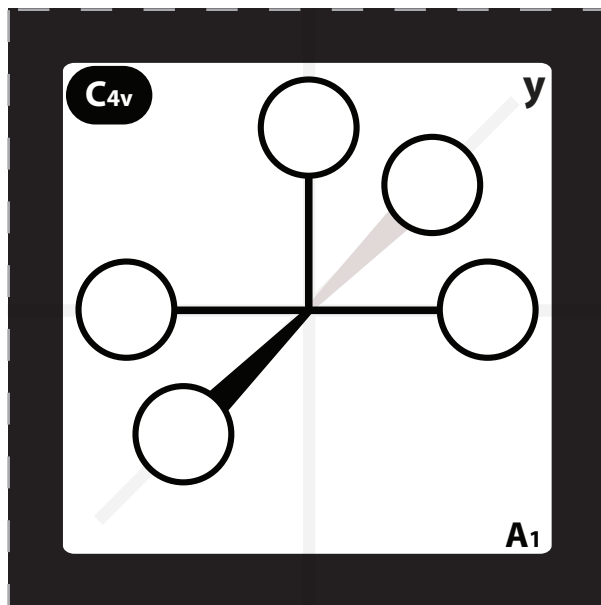
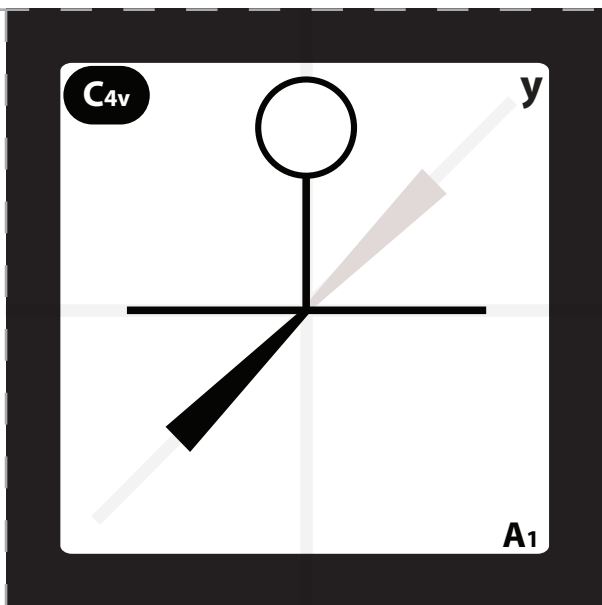
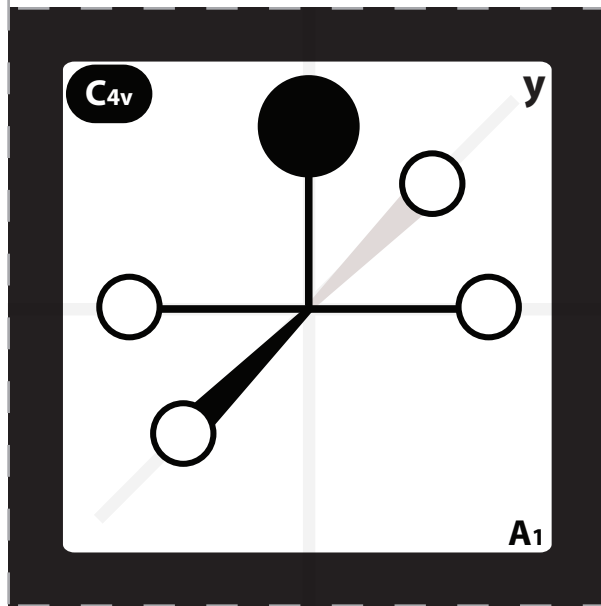
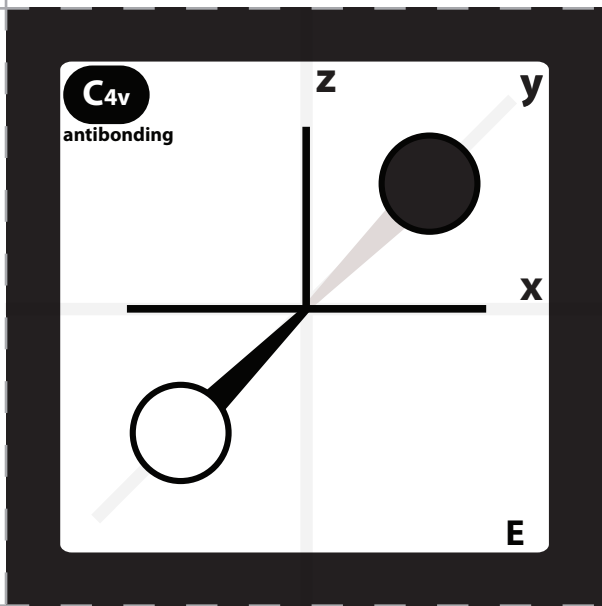


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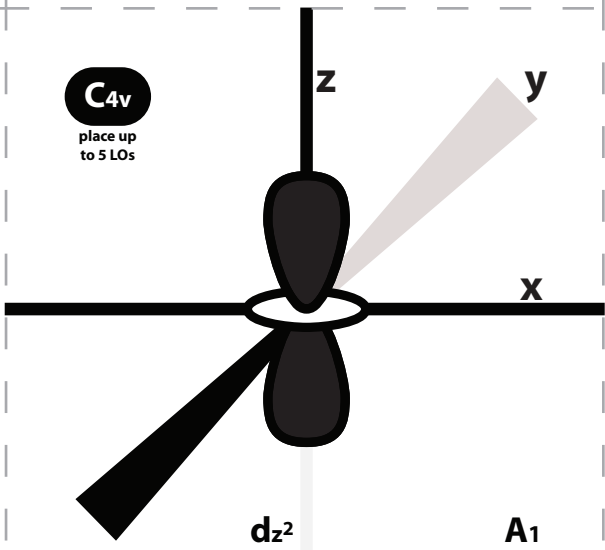


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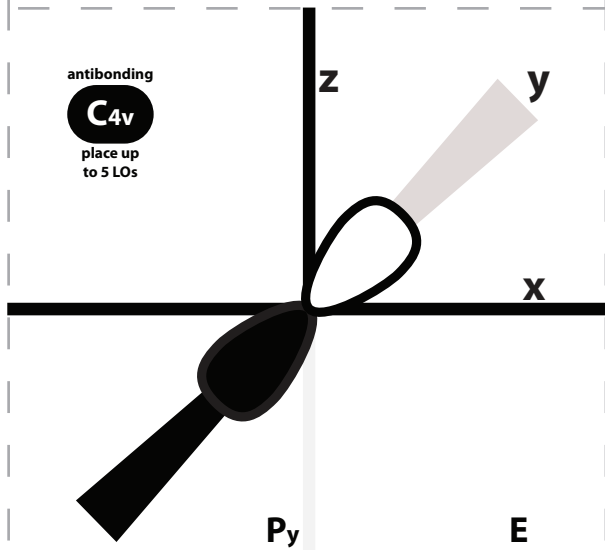




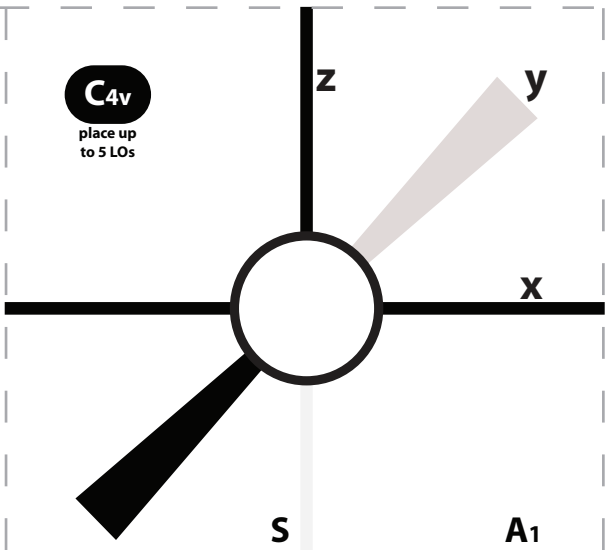
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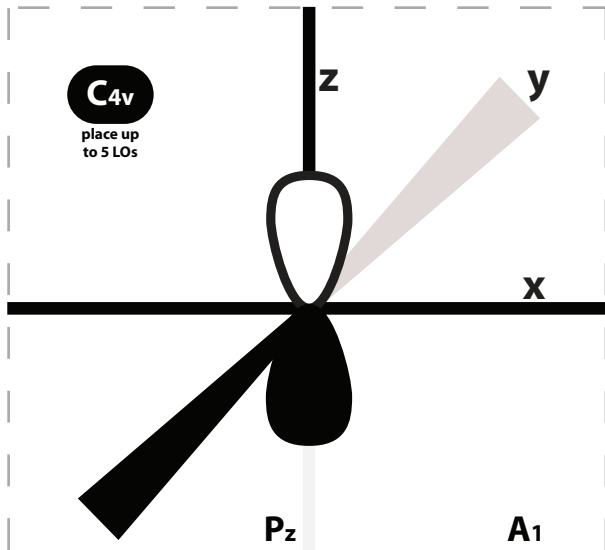
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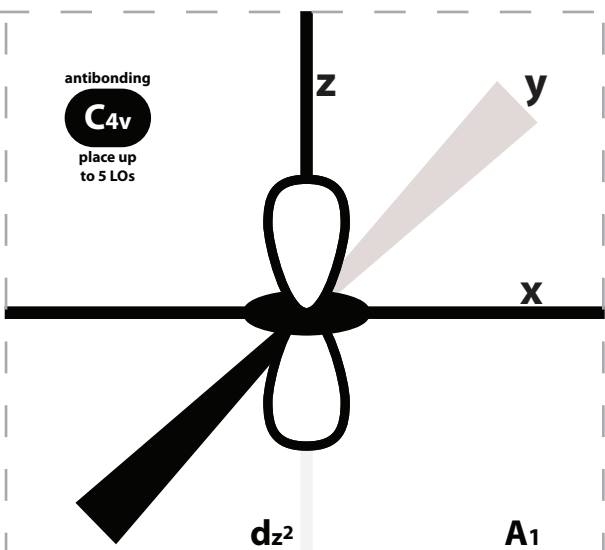
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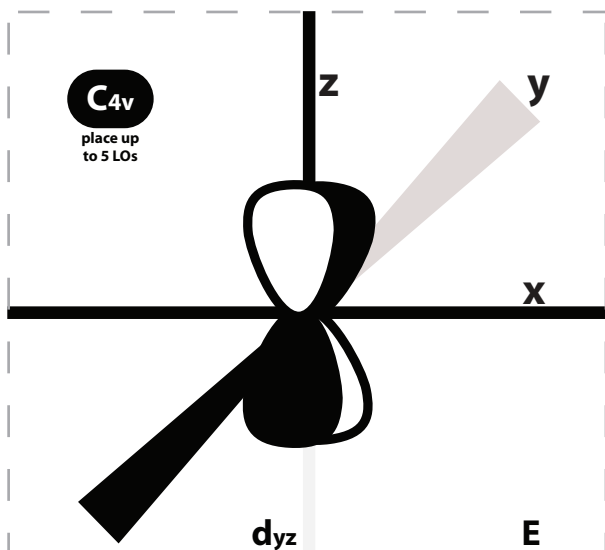
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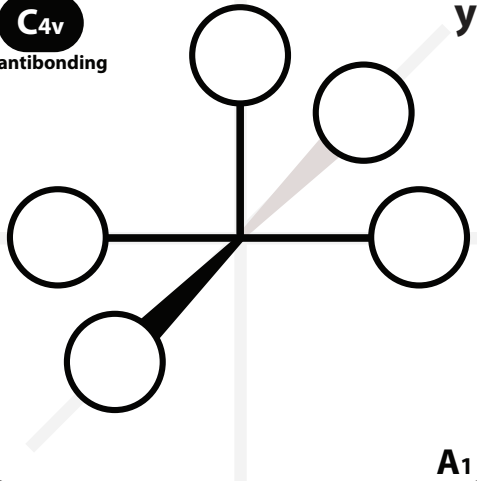
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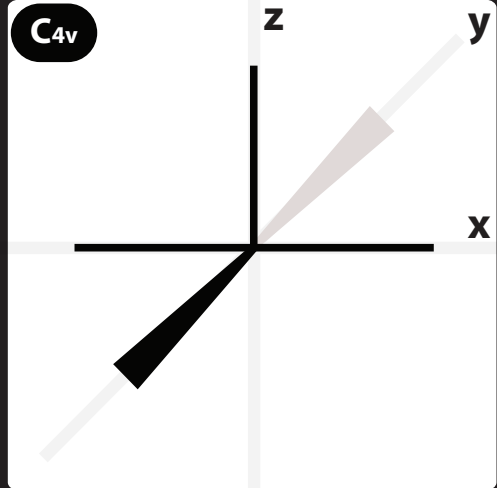


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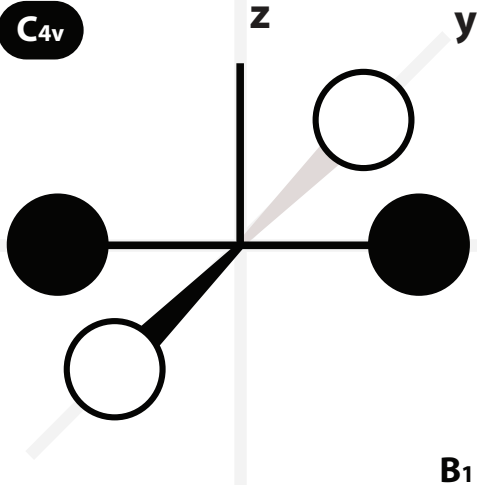


A₁

C_{4v}

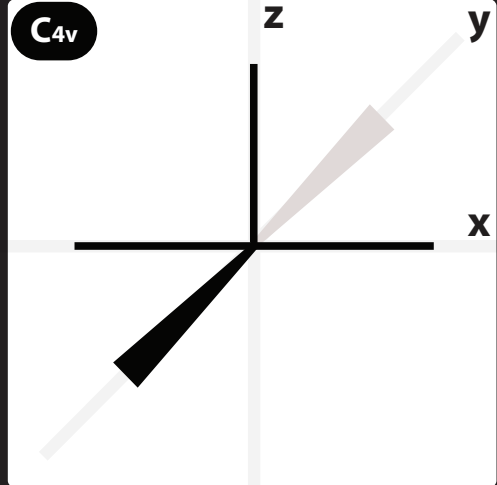


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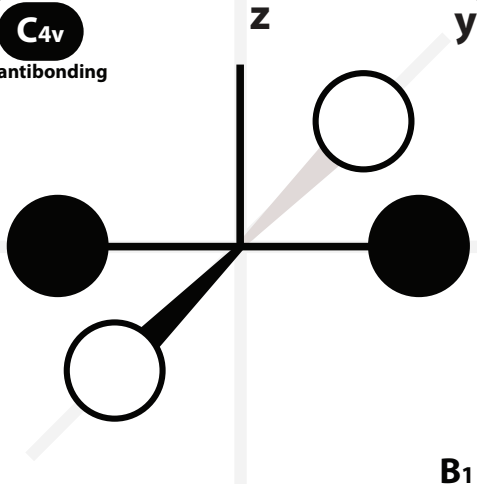


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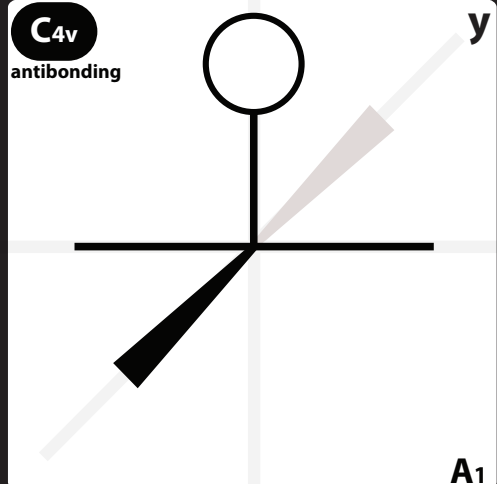


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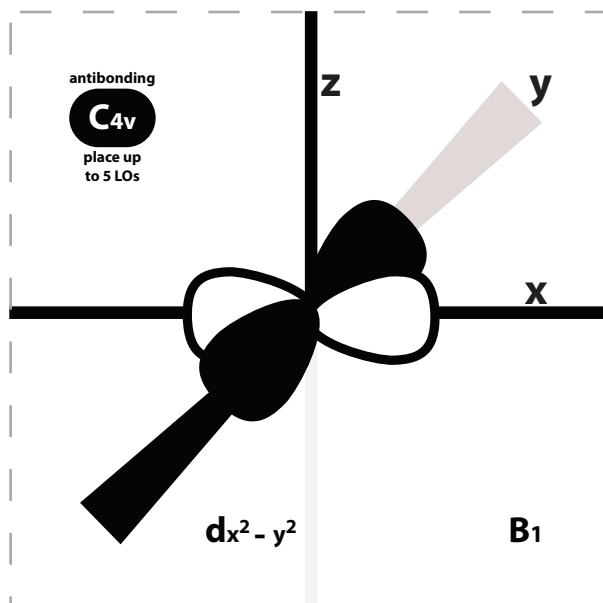
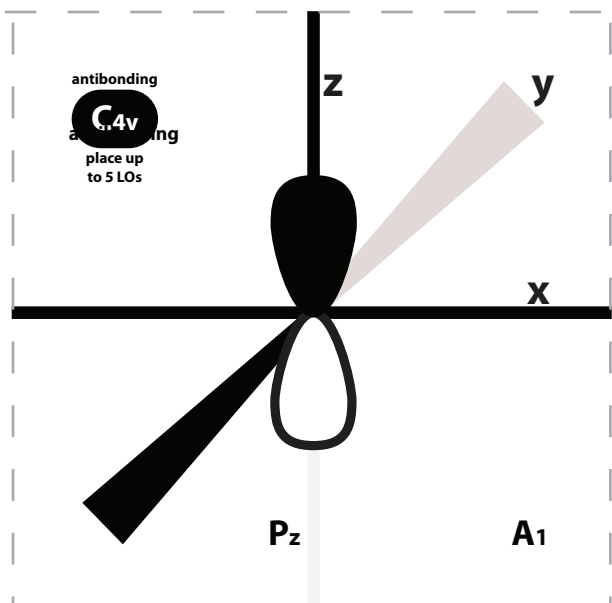
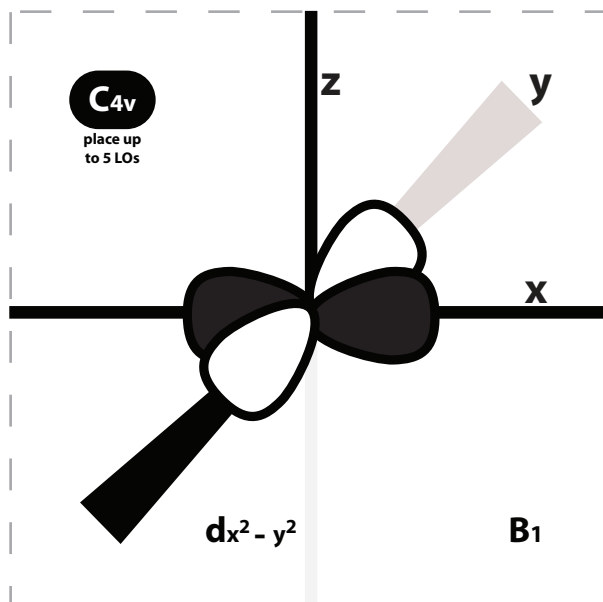
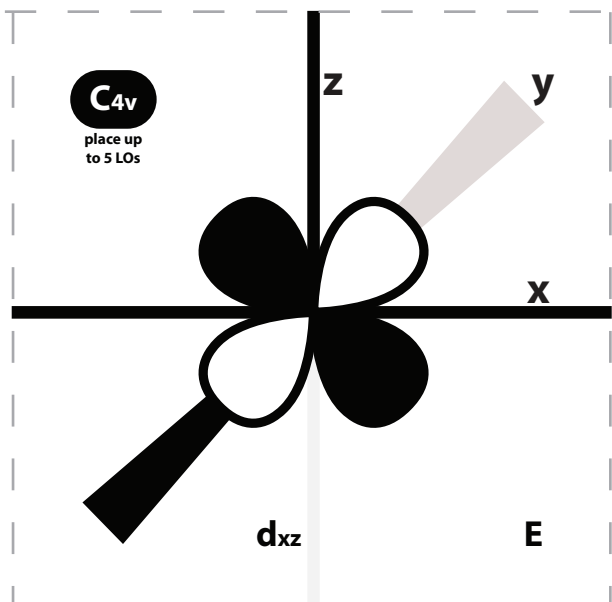
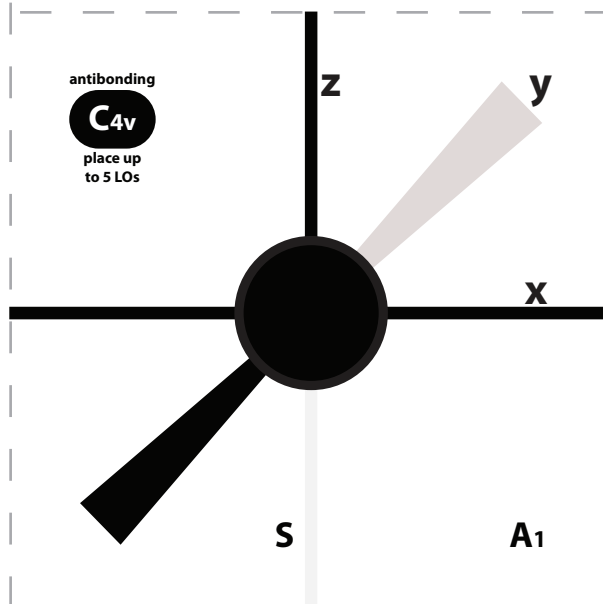
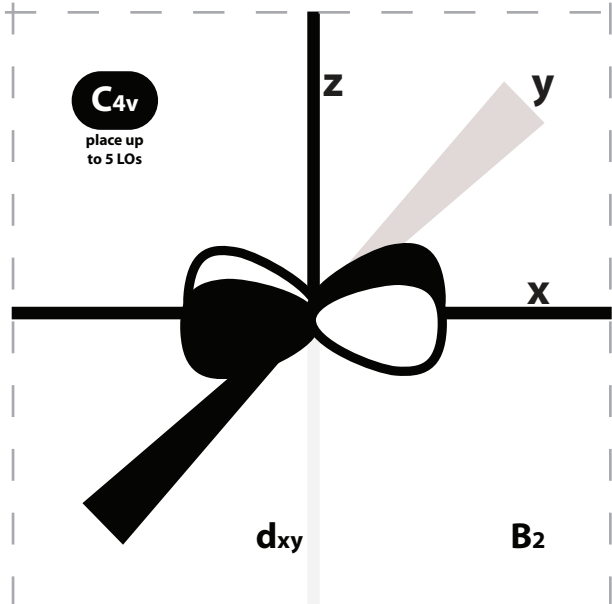


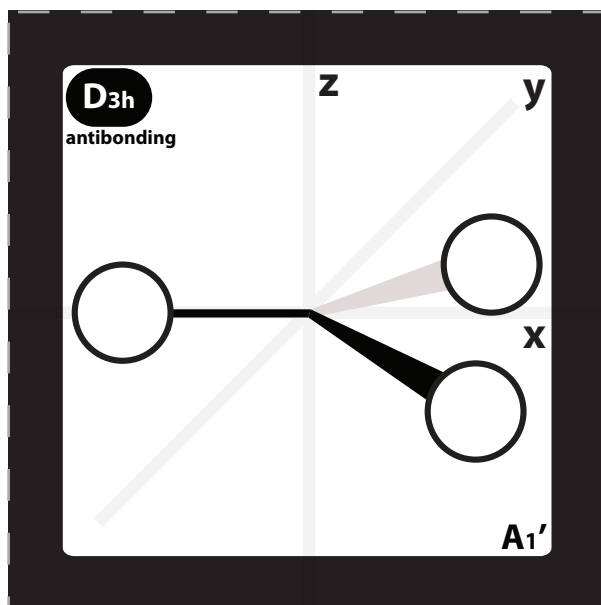
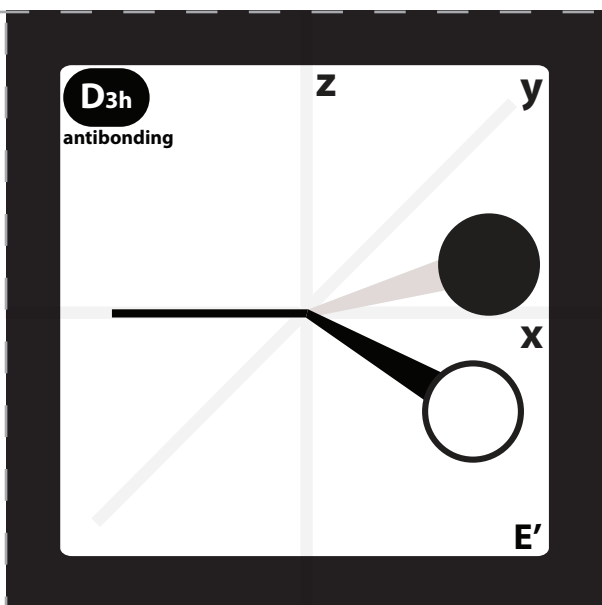
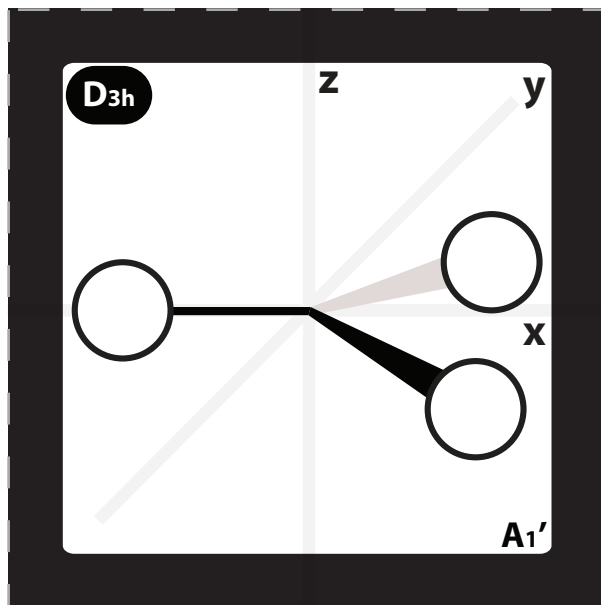
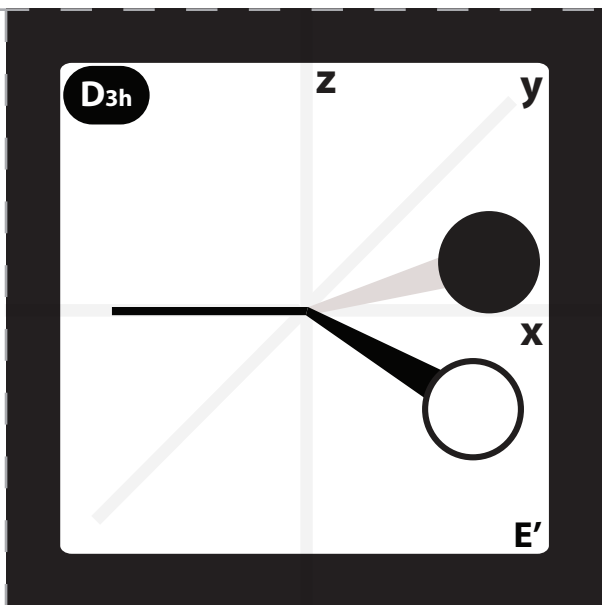
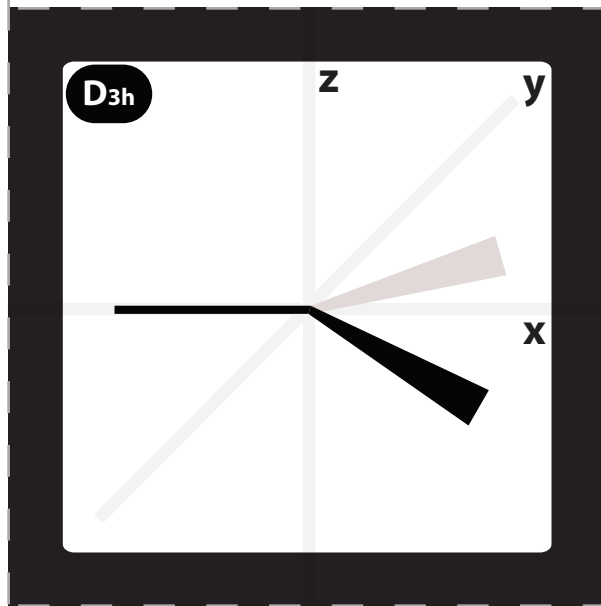
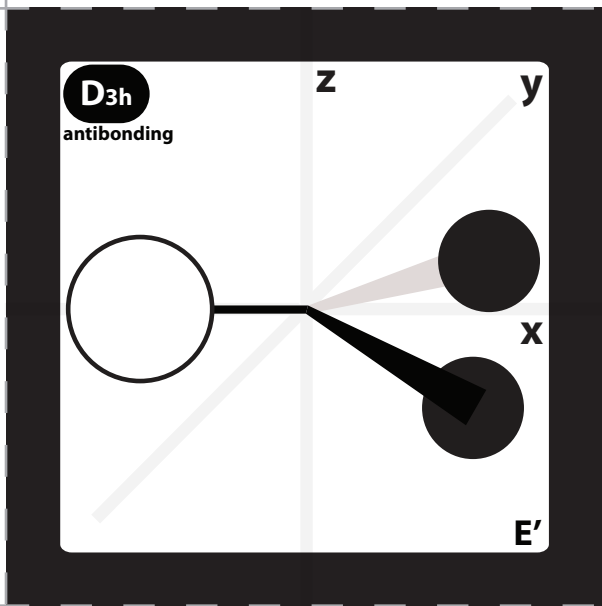
B₁

C_{4v}
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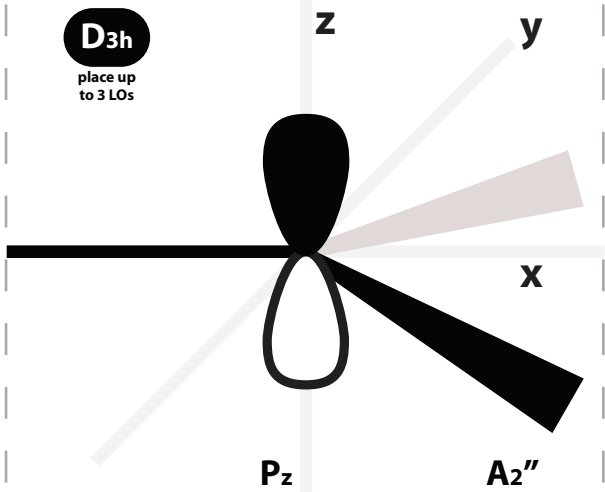


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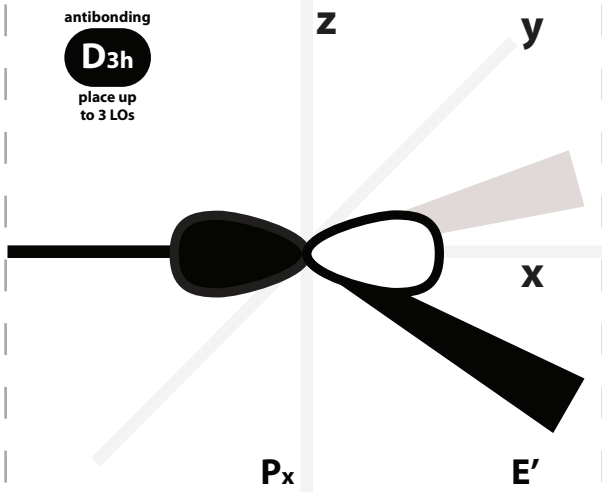




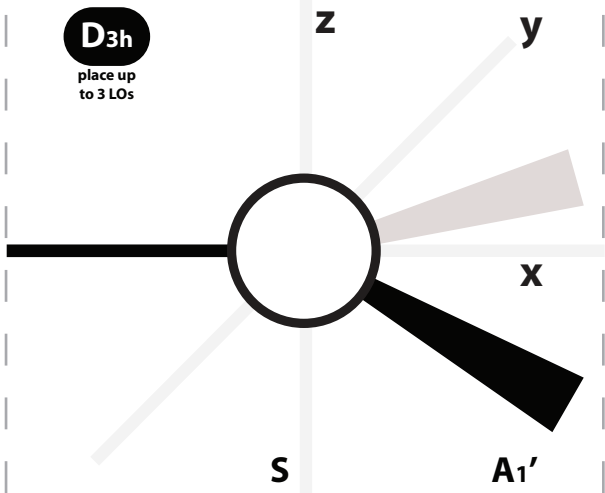
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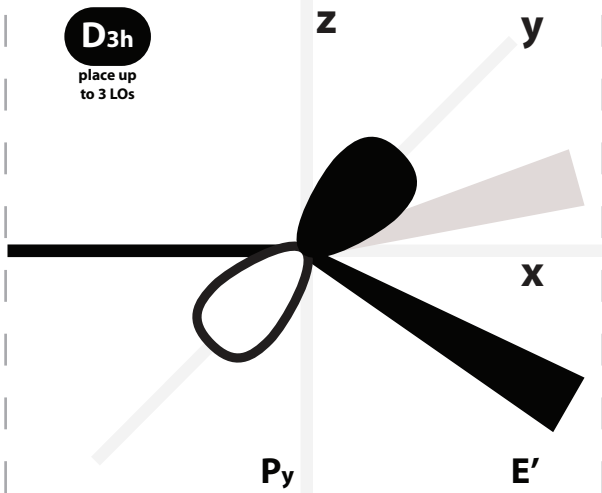
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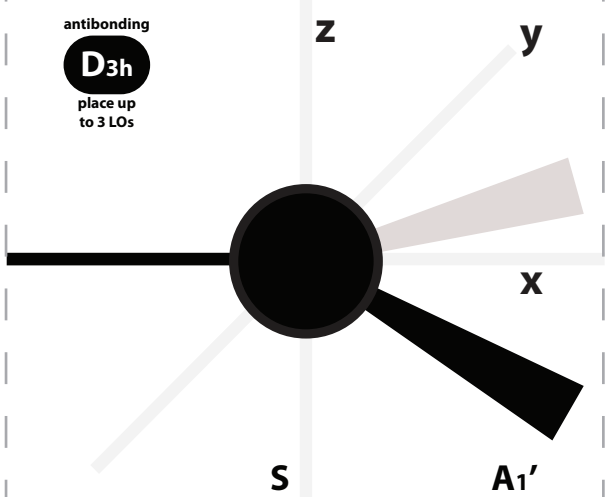
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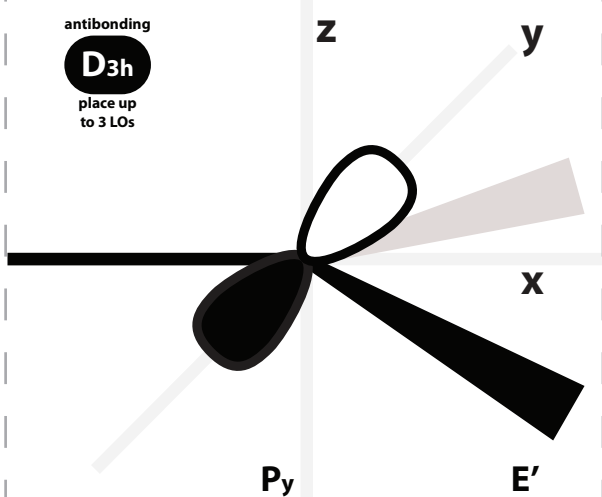
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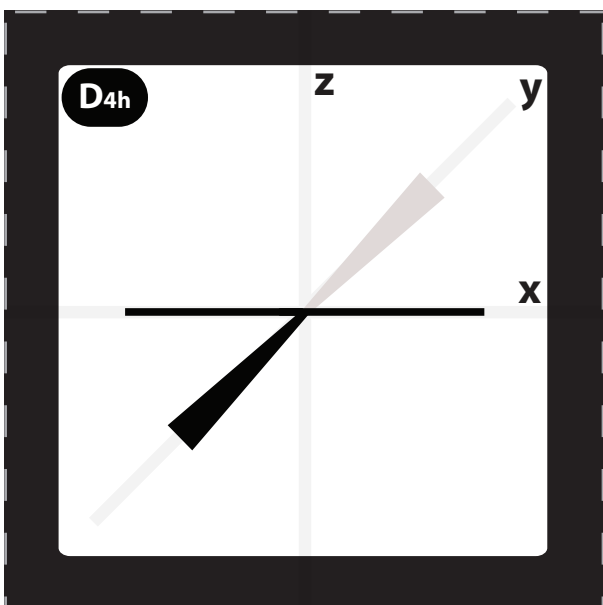
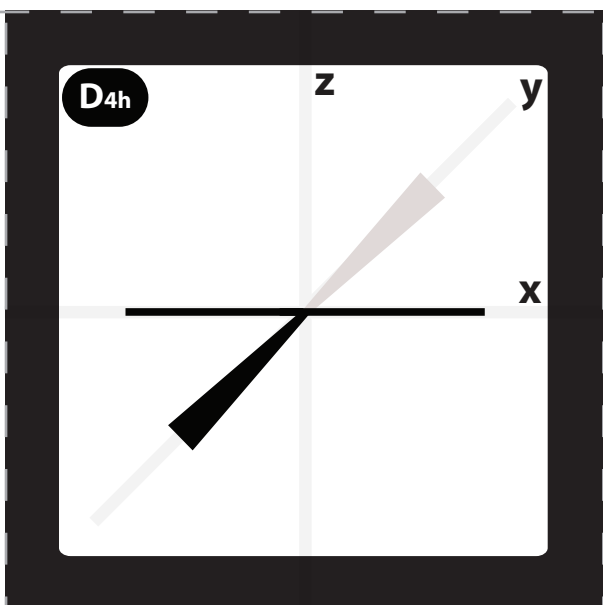
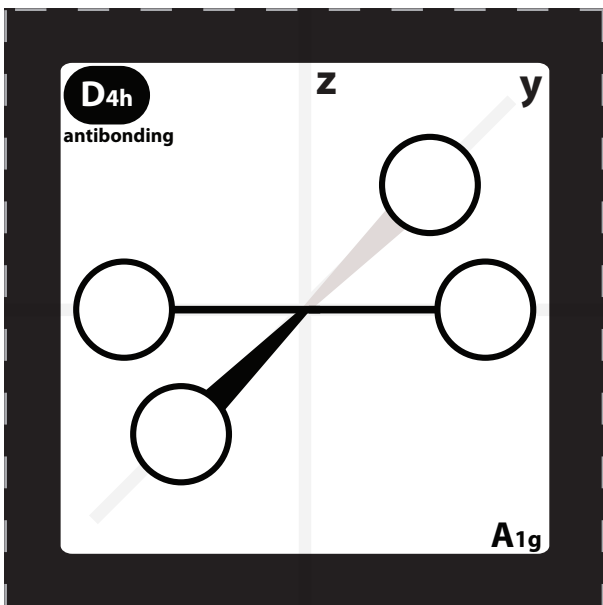
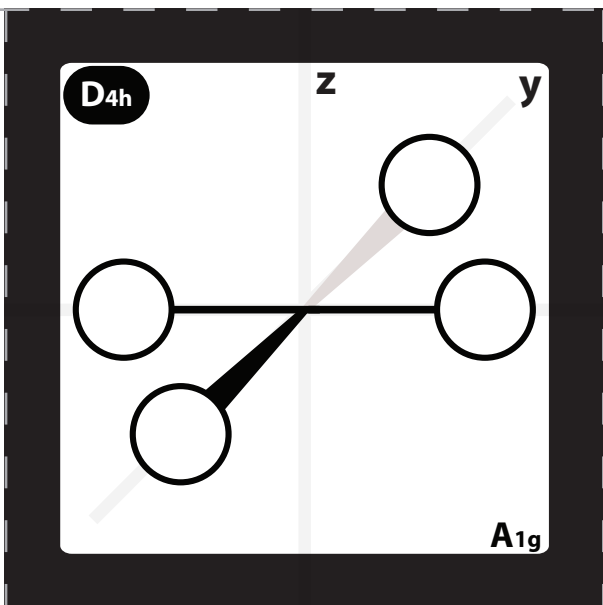
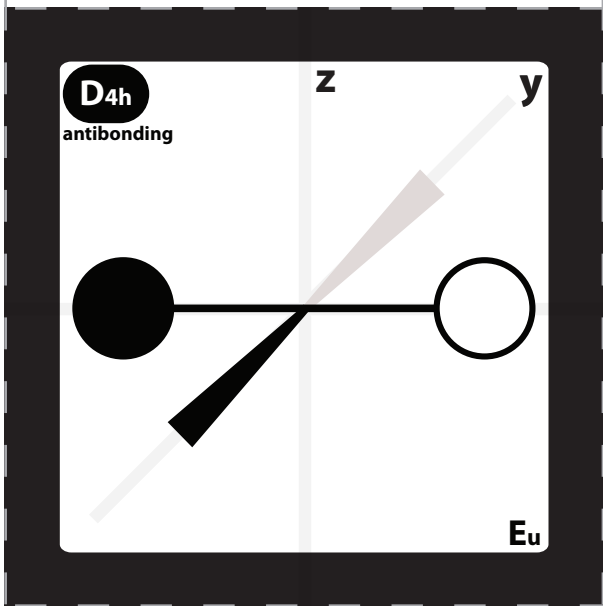
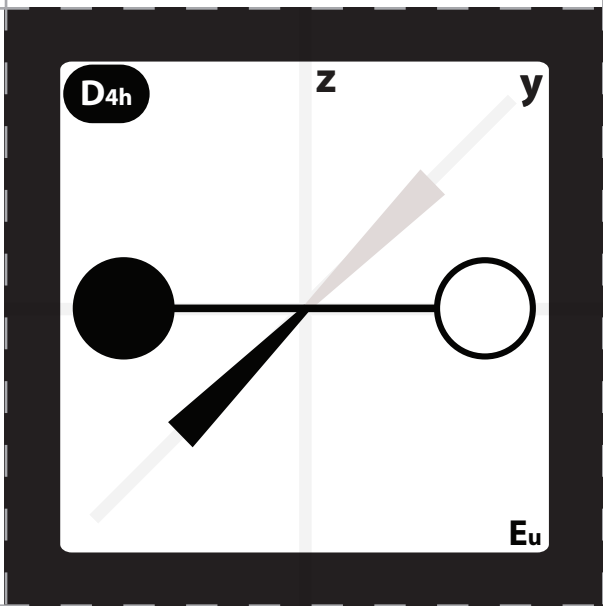


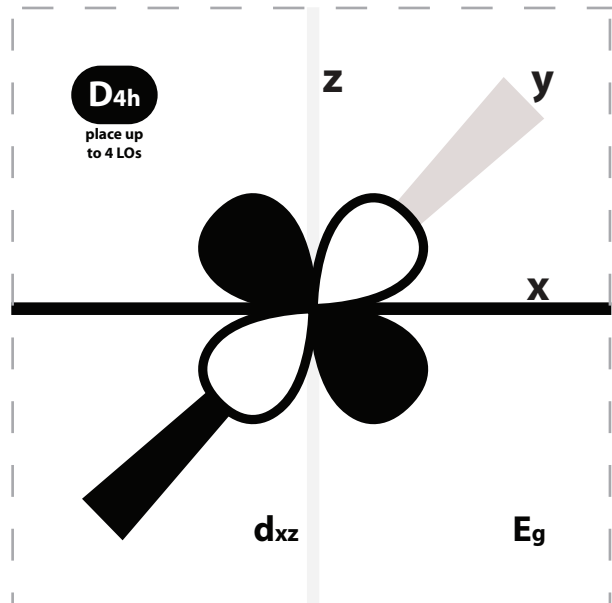
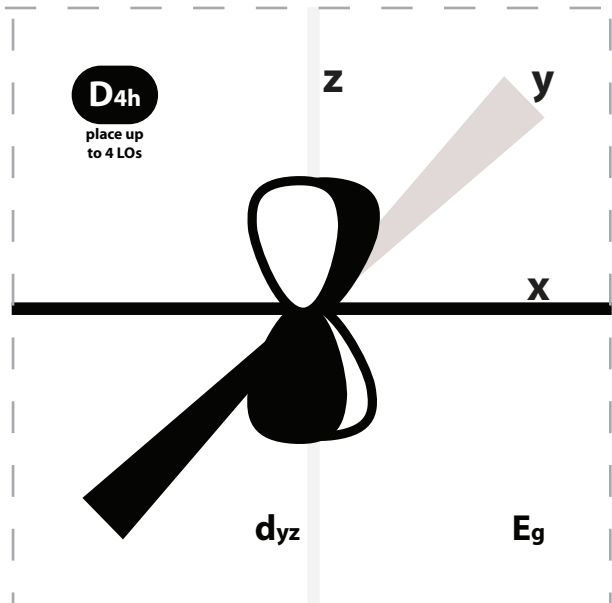
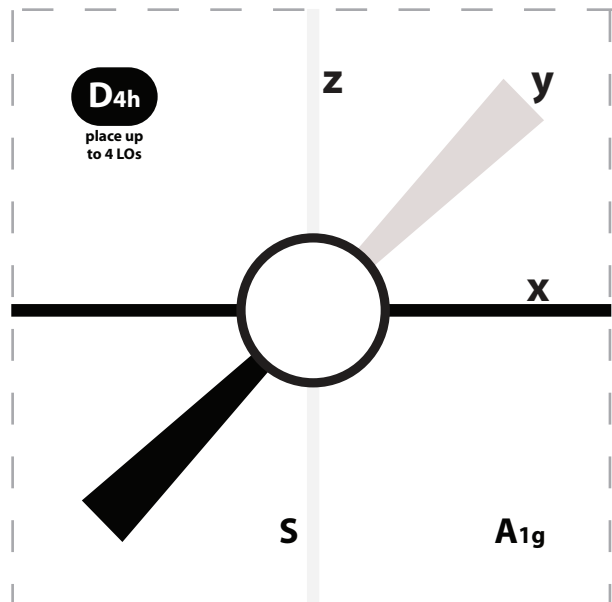
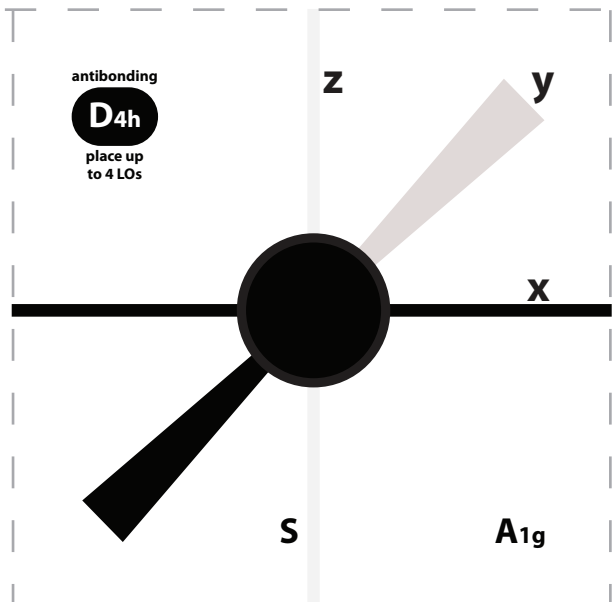
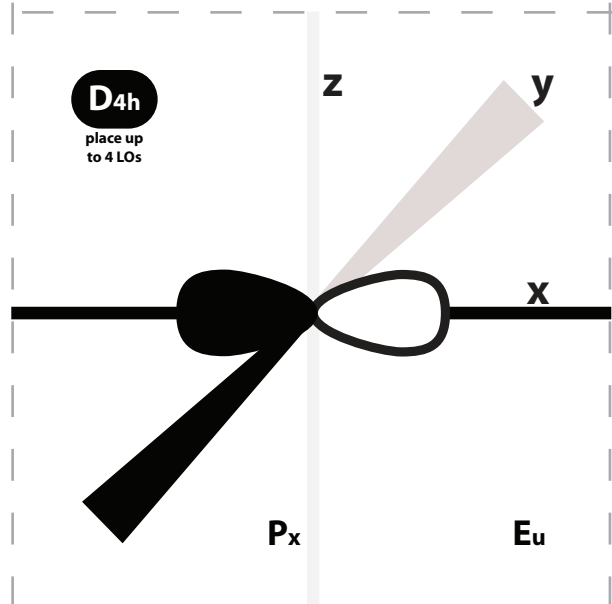
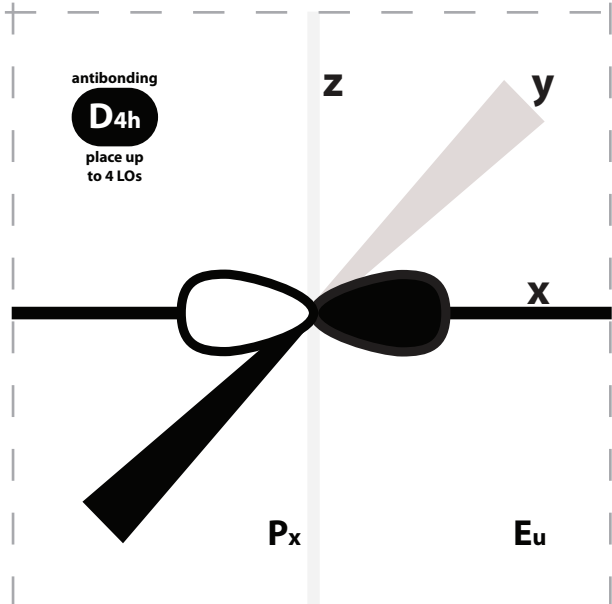
antibonding
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to 3 LOs

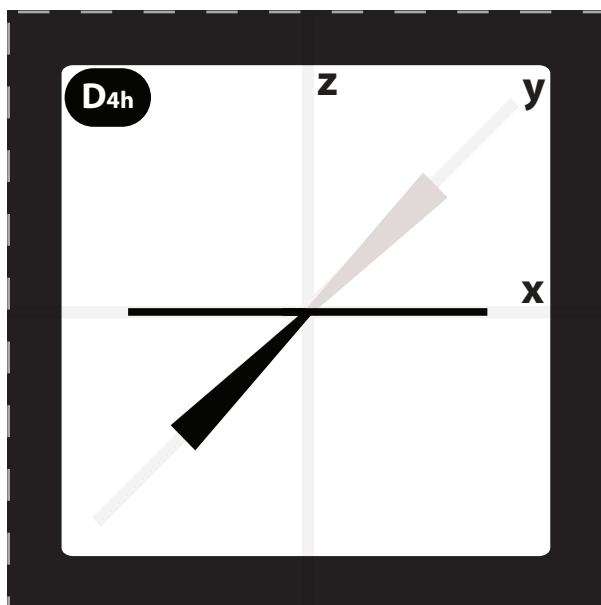
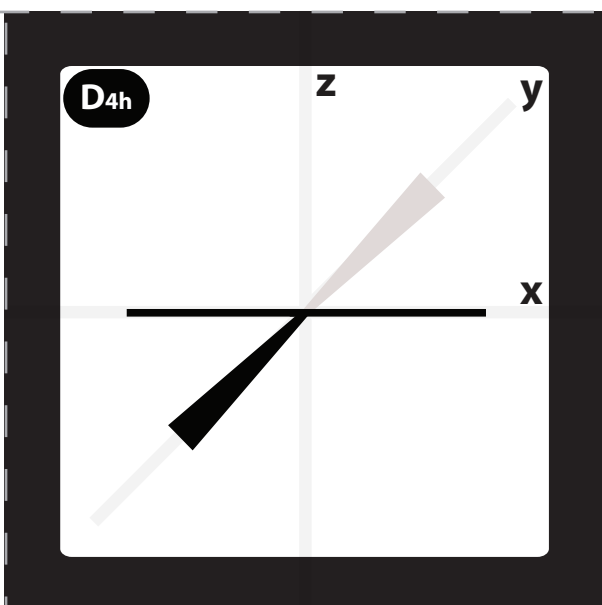
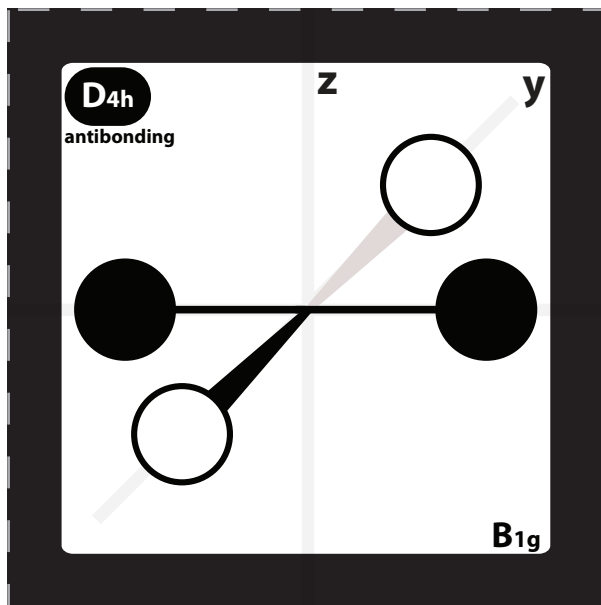
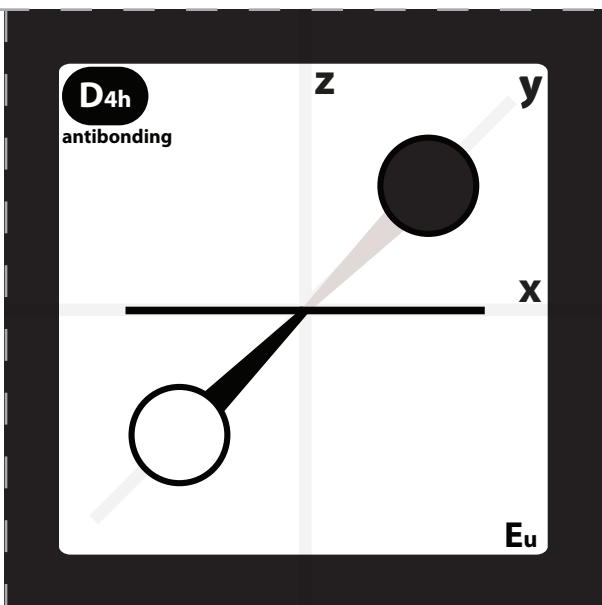
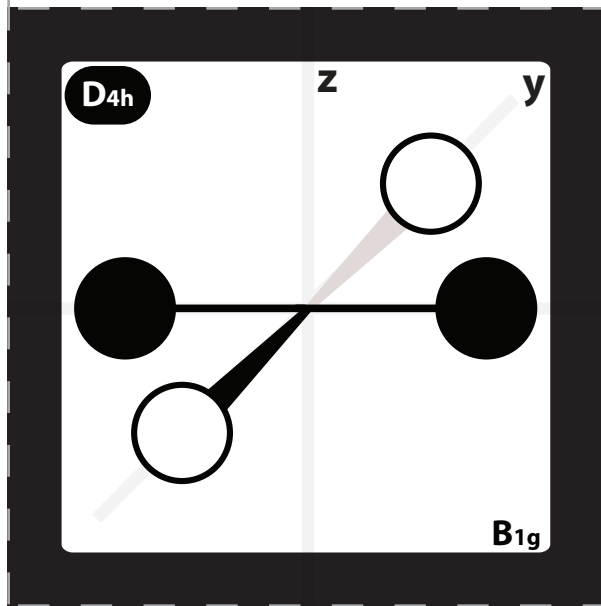
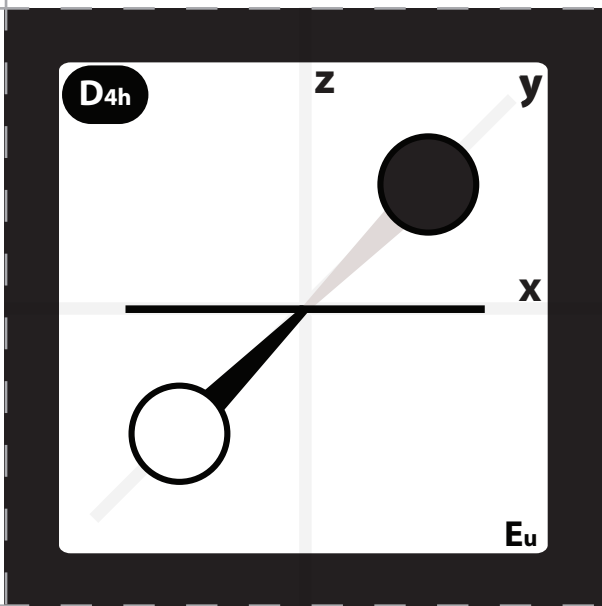


antibonding
D_{3h}
place up
to 3 LOs

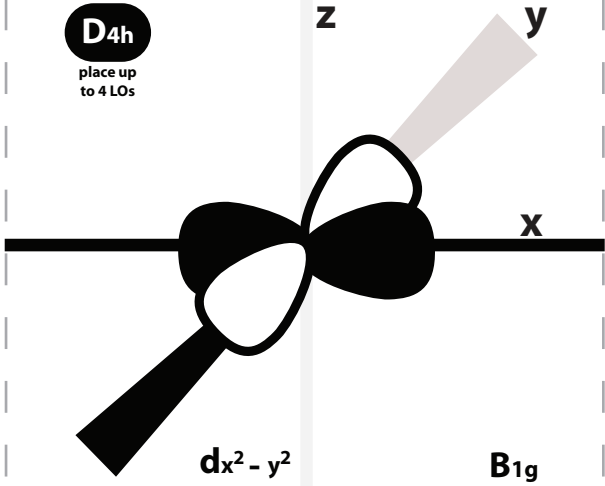




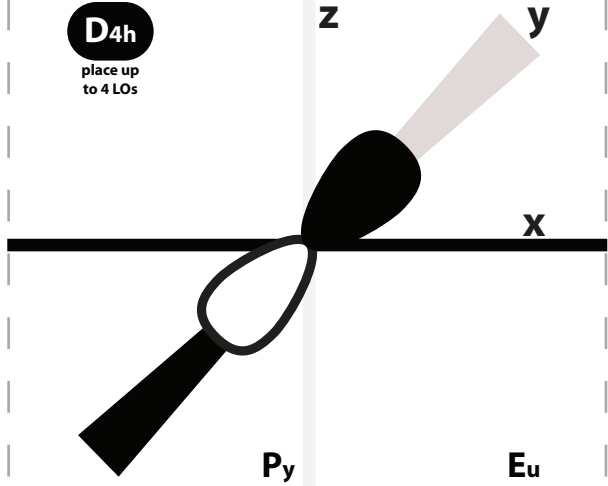




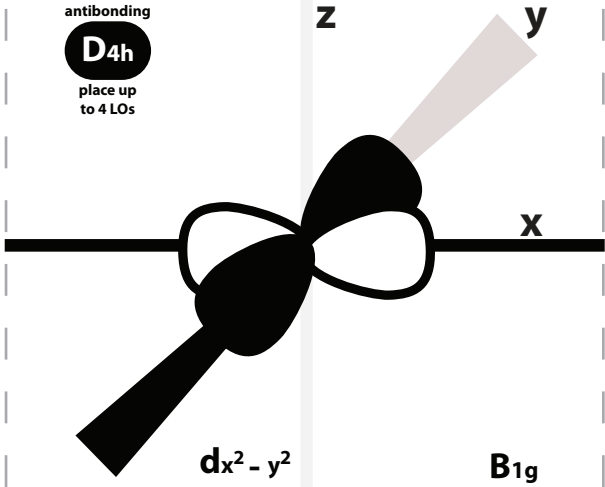
D_{4h}
place up
to 4 LOs



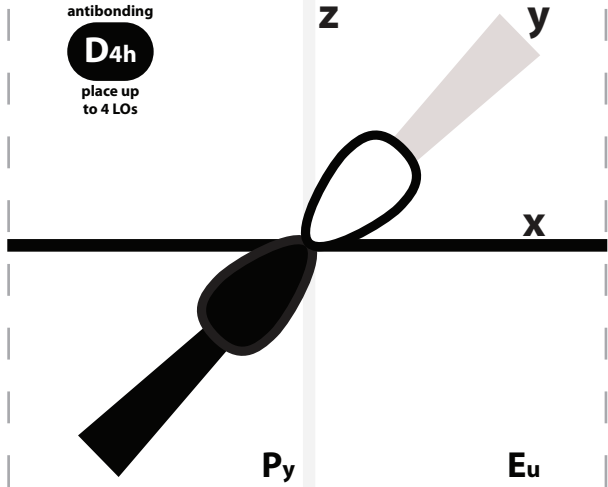
D_{4h}
place up
to 4 LOs



antibonding
D_{4h}
place up
to 4 LOs



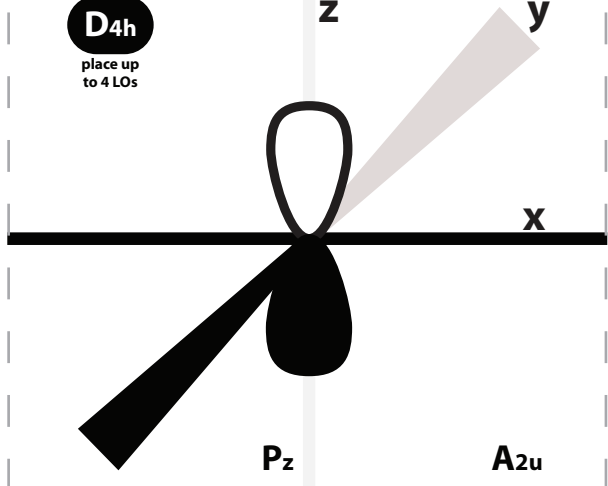
antibonding
D_{4h}
place up
to 4 LOs

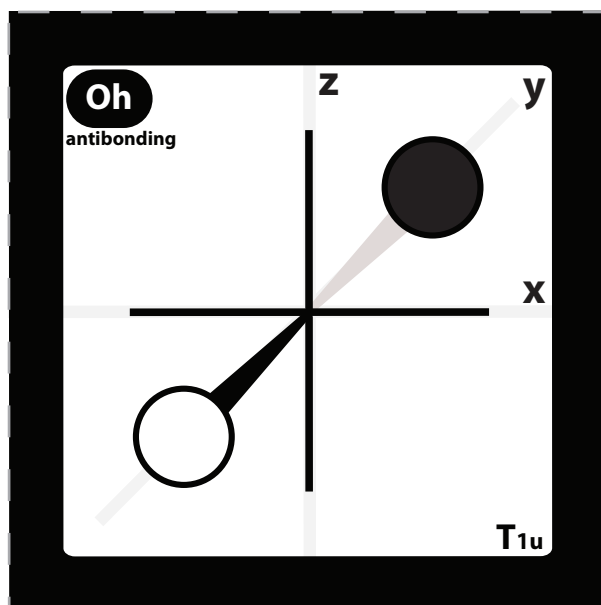
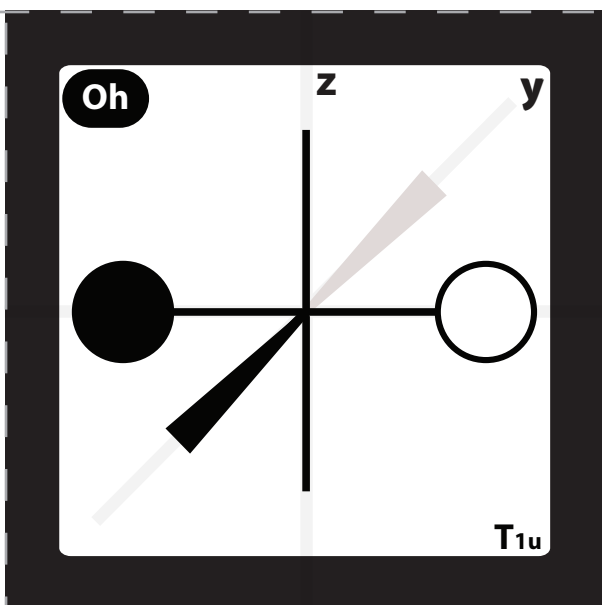
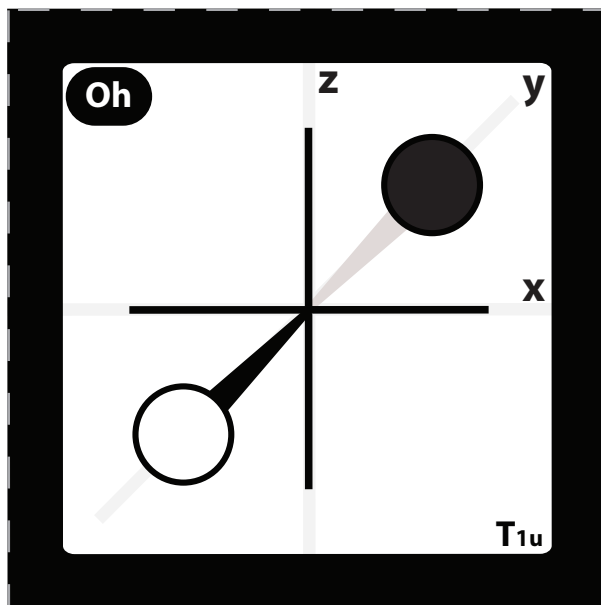
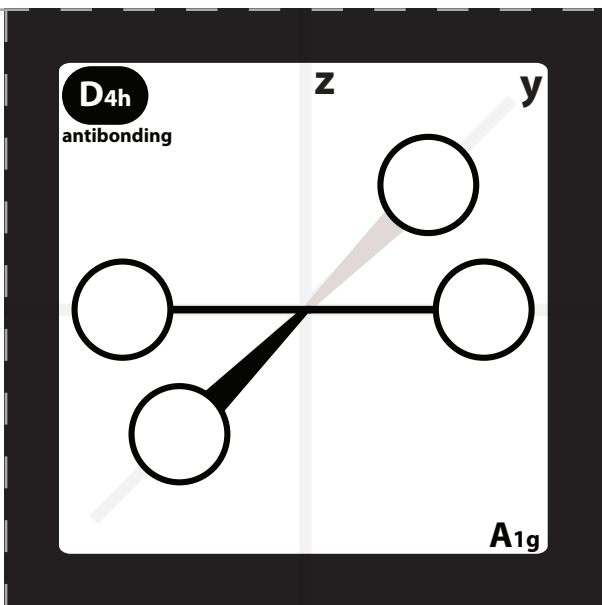
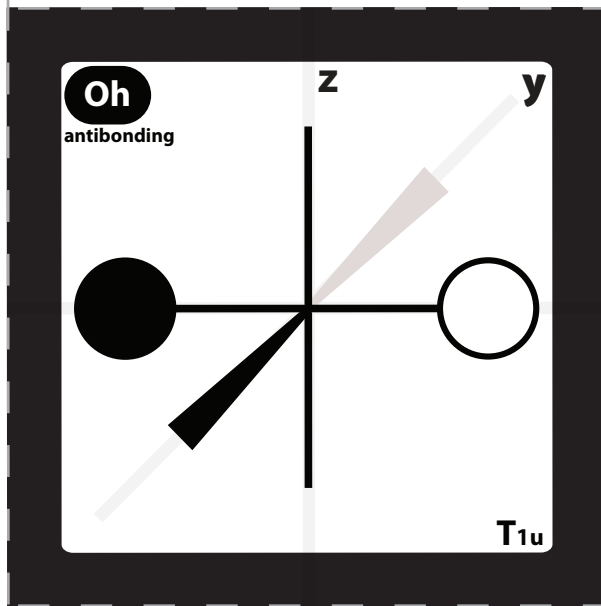
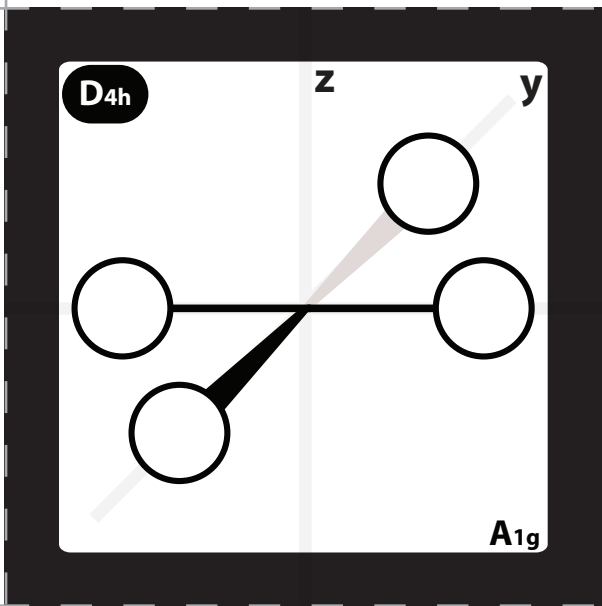


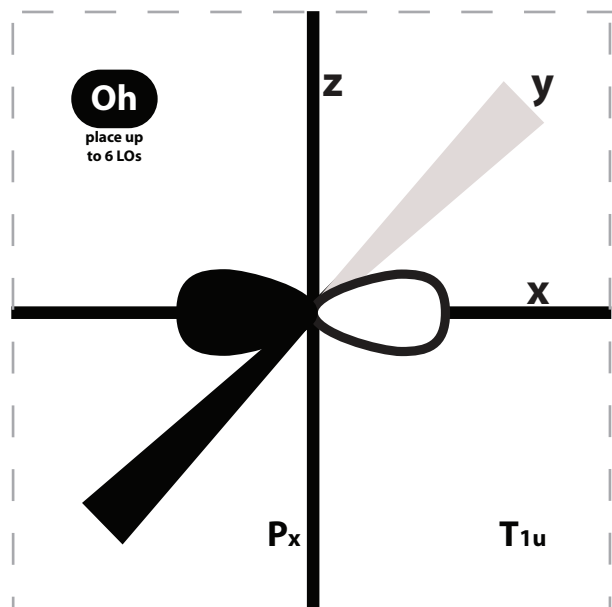
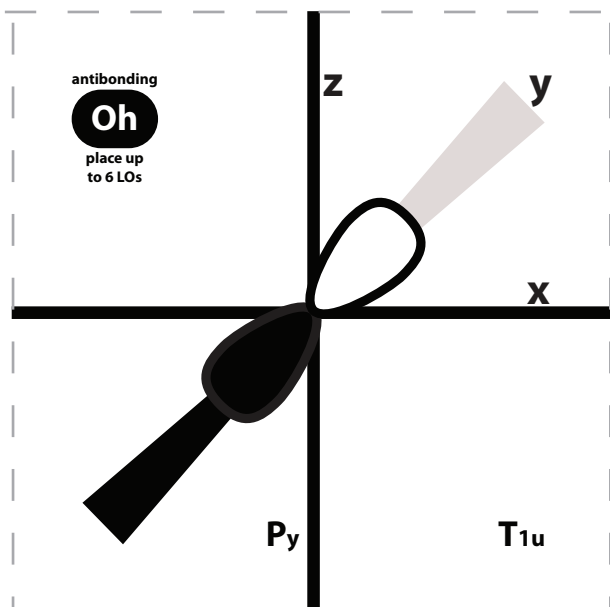
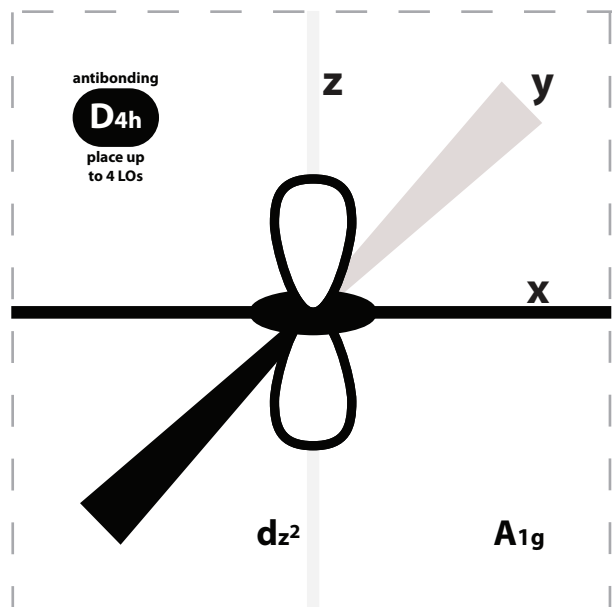
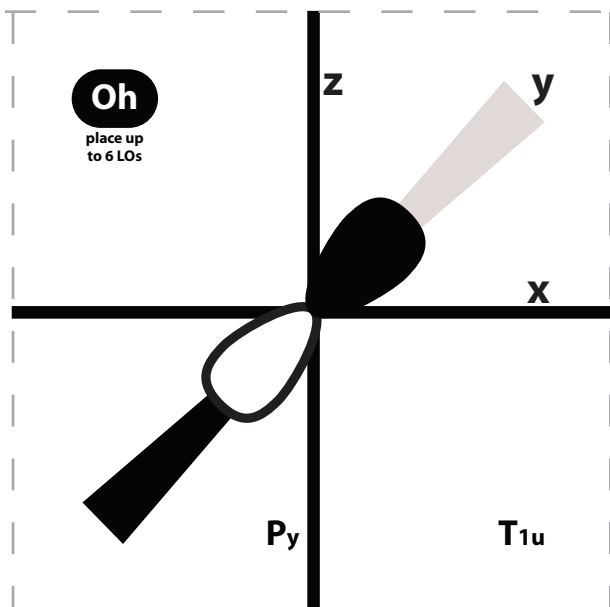
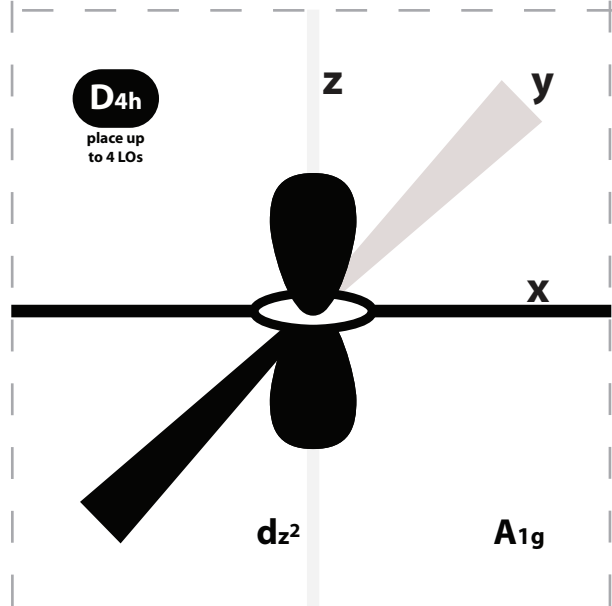
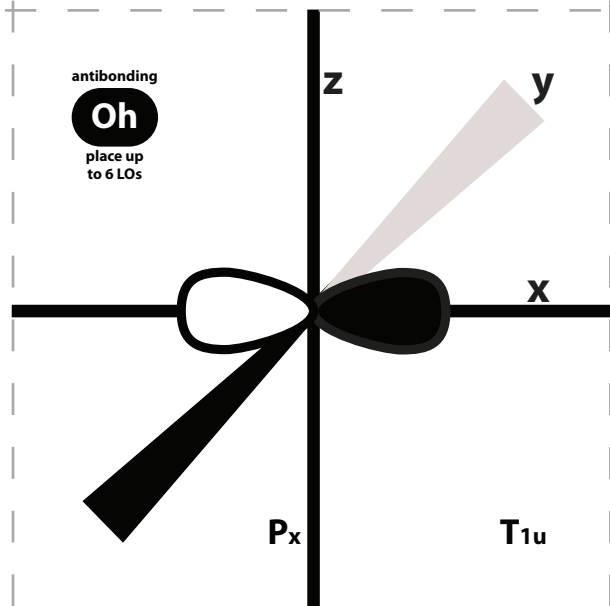
D_{4h}
place up
to 4 LOs

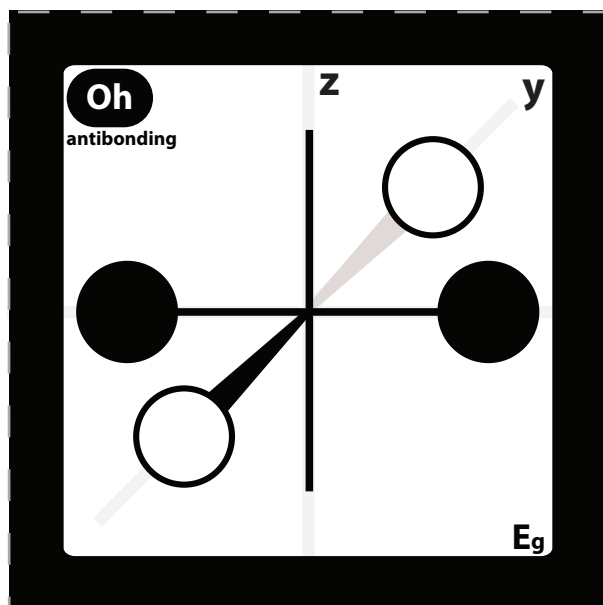
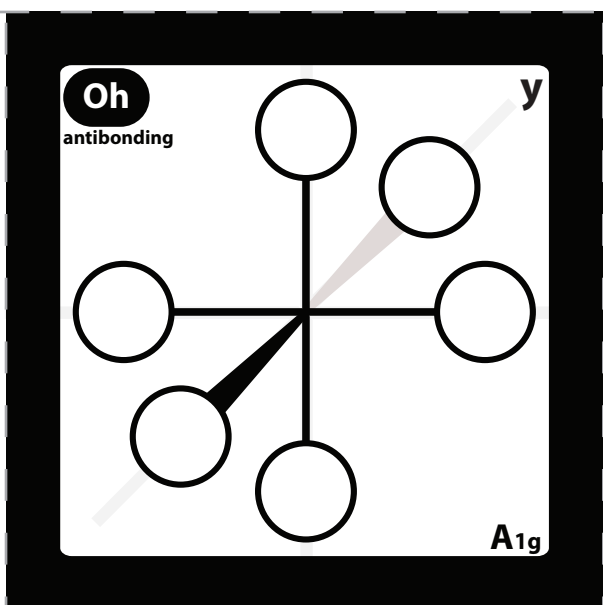
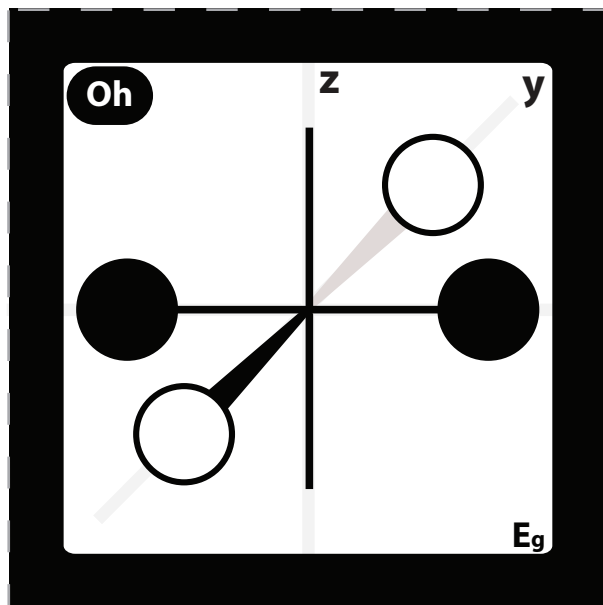
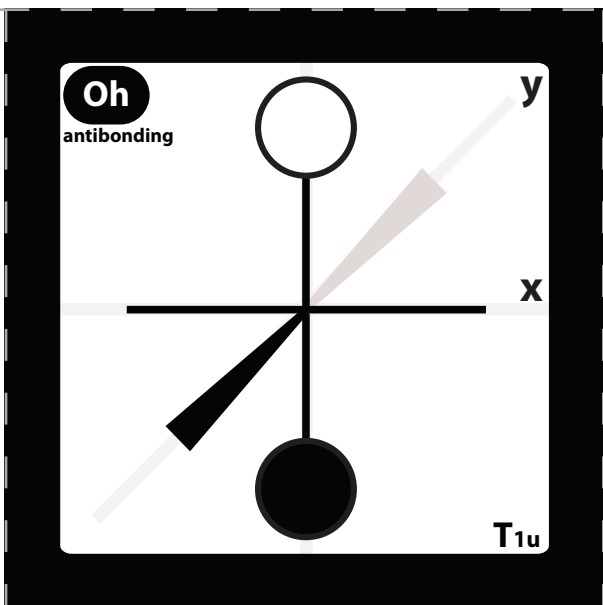
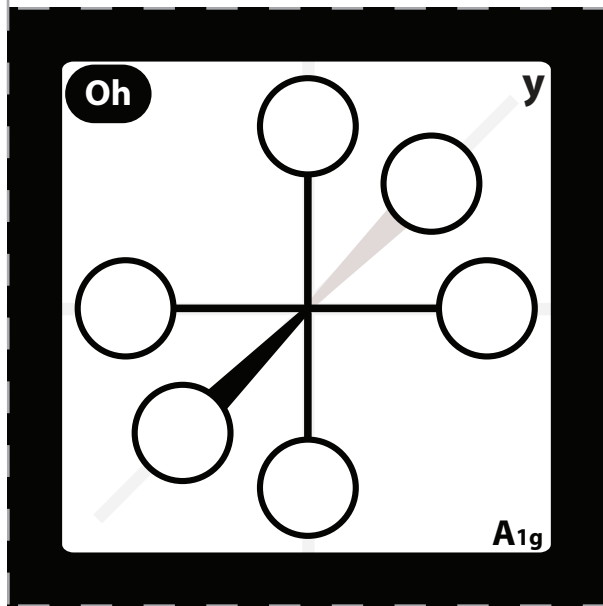
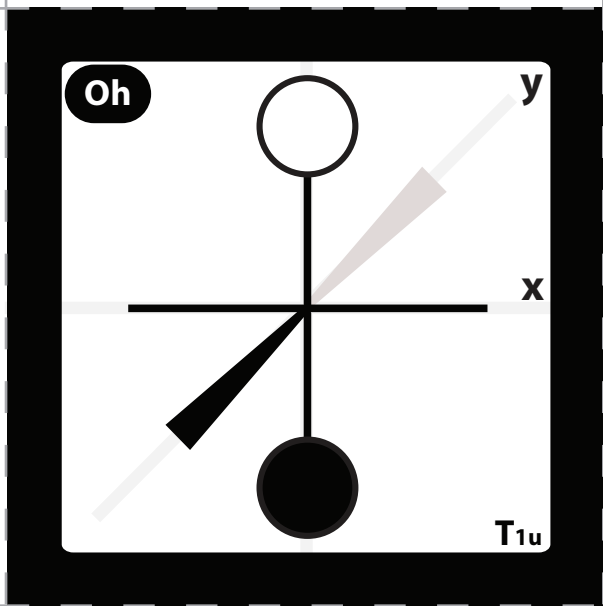


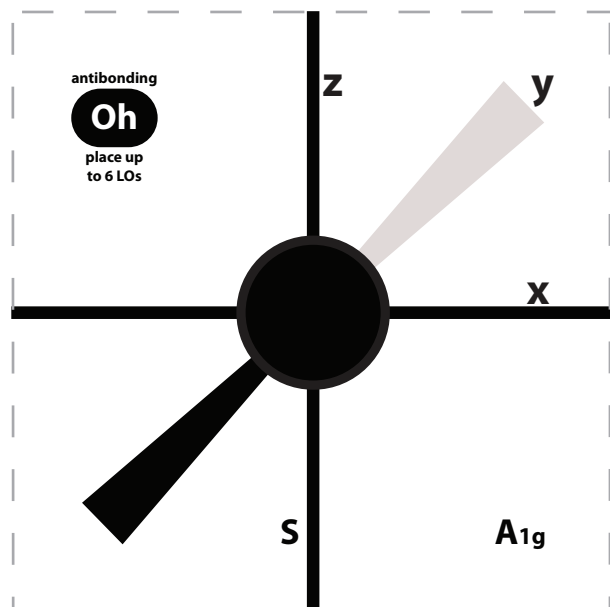
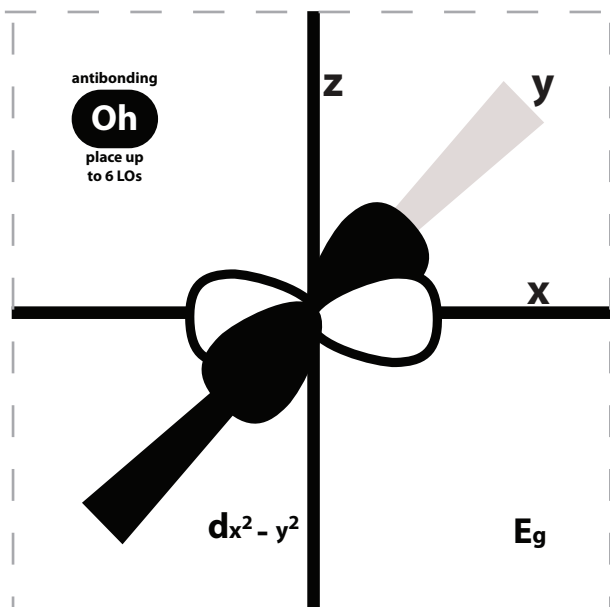
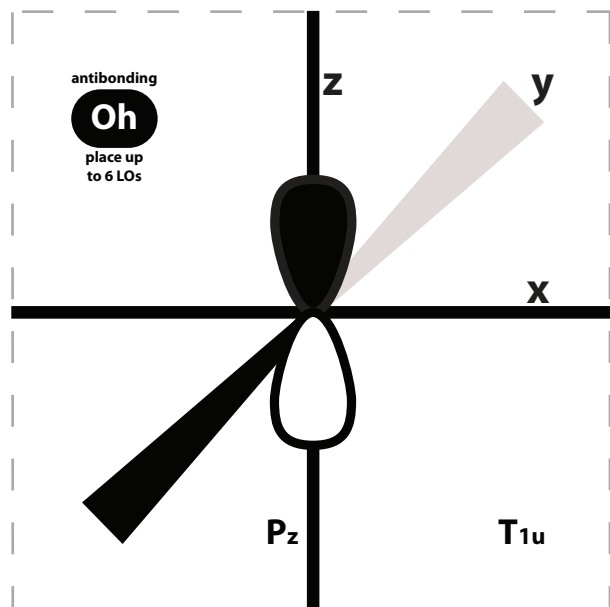
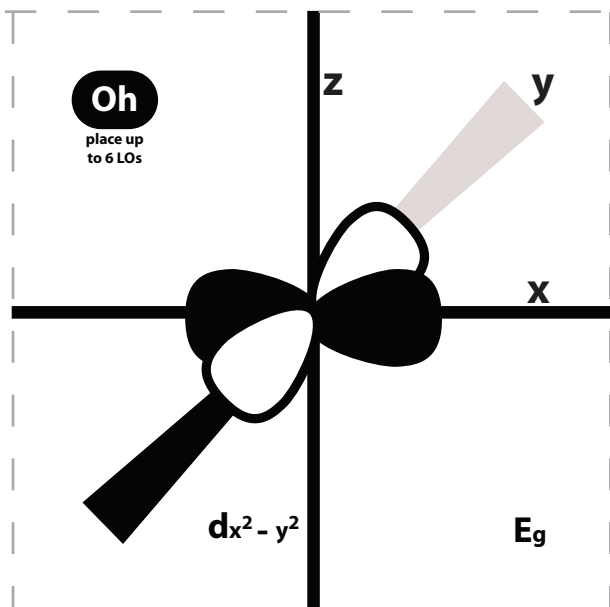
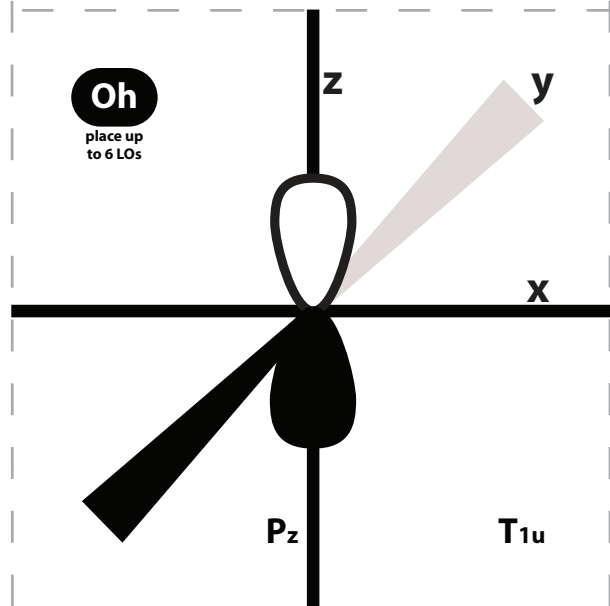
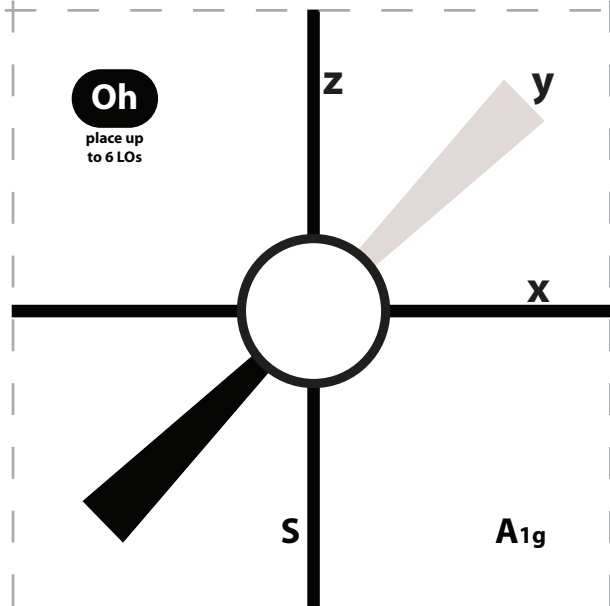
D_{4h}
place up
to 4 LOs

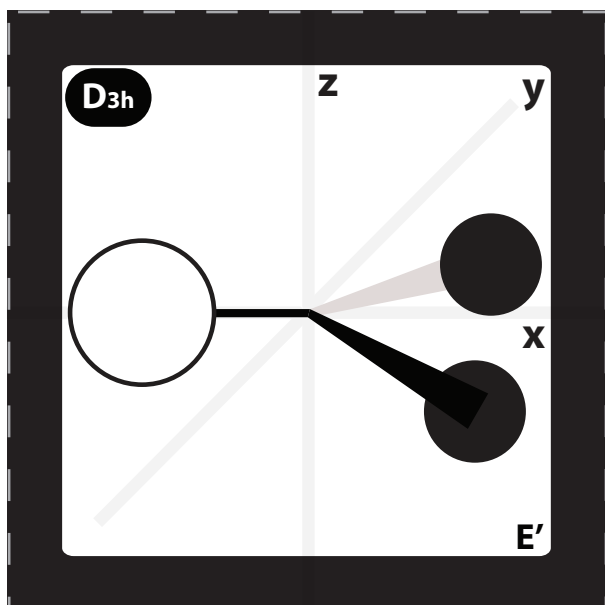
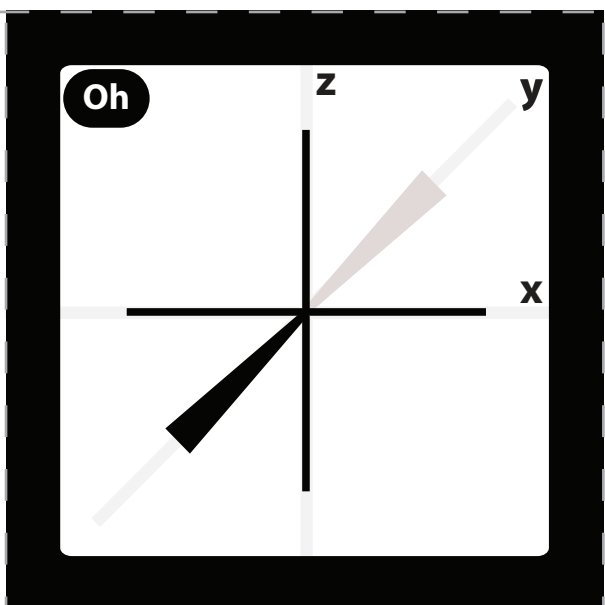
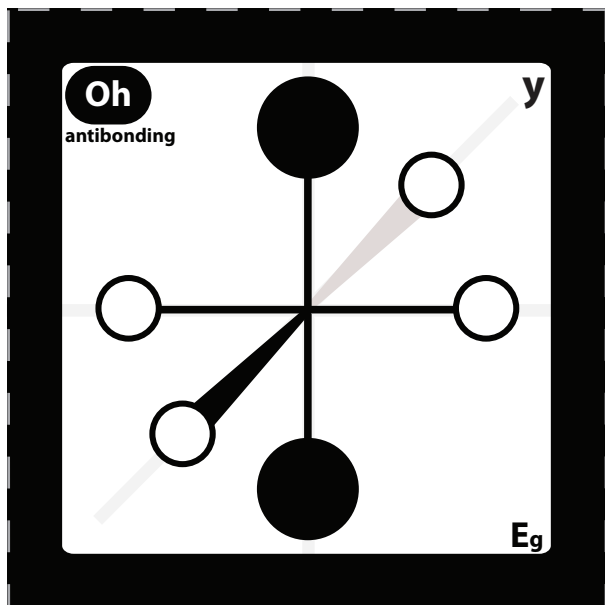
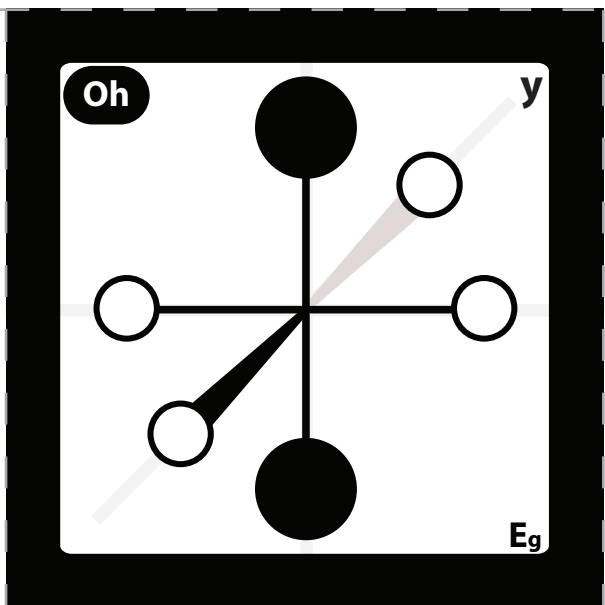
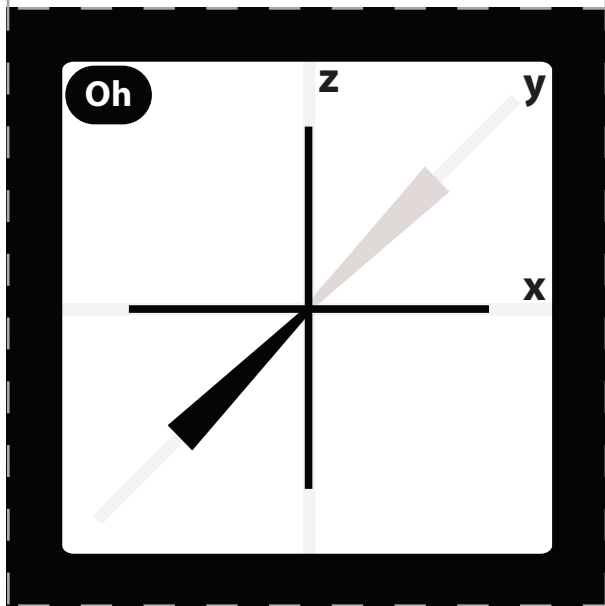
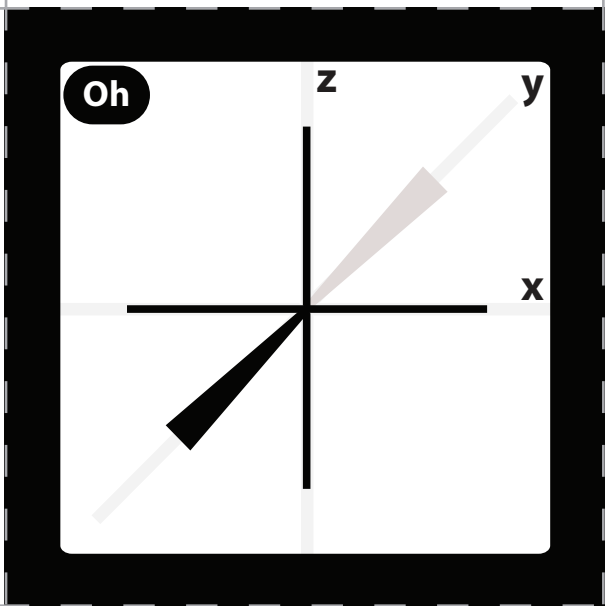


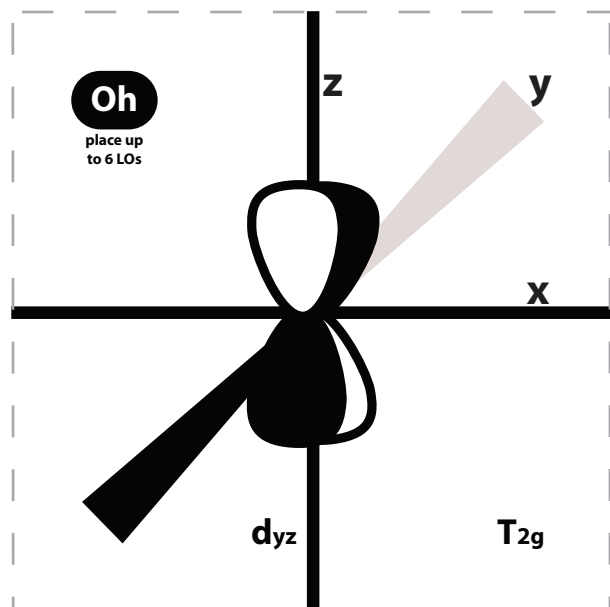
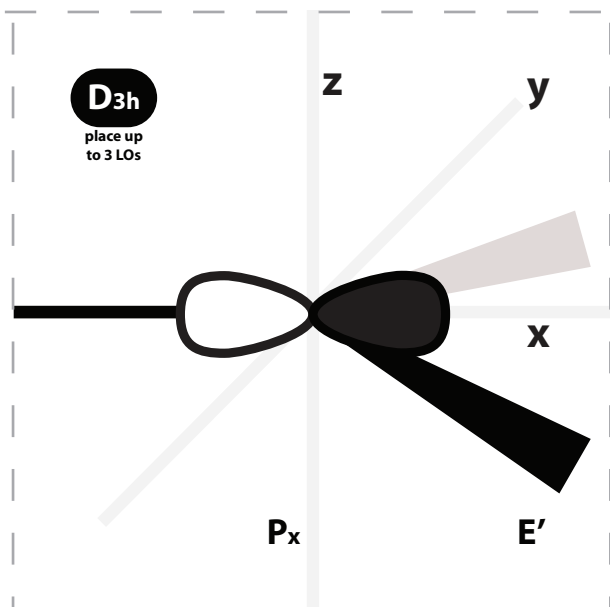
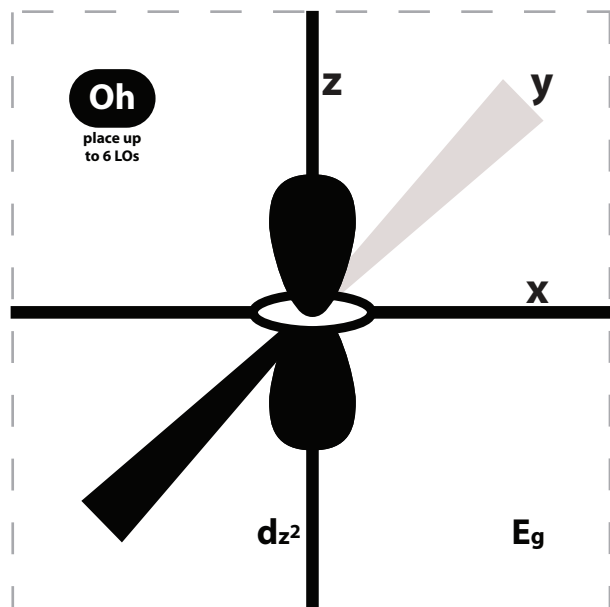
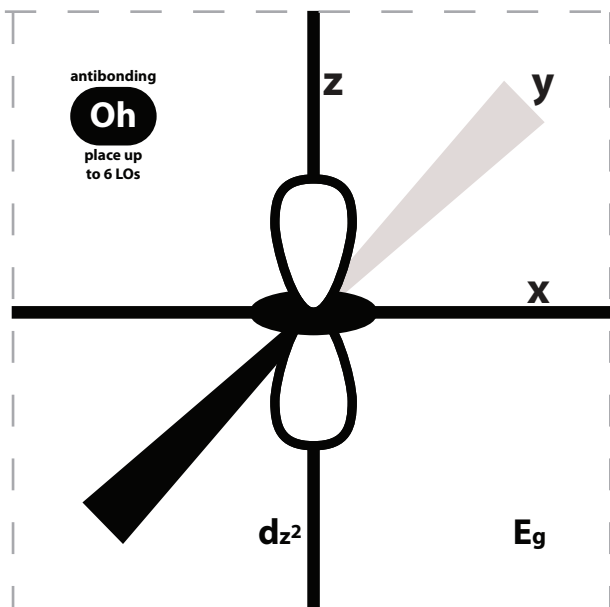
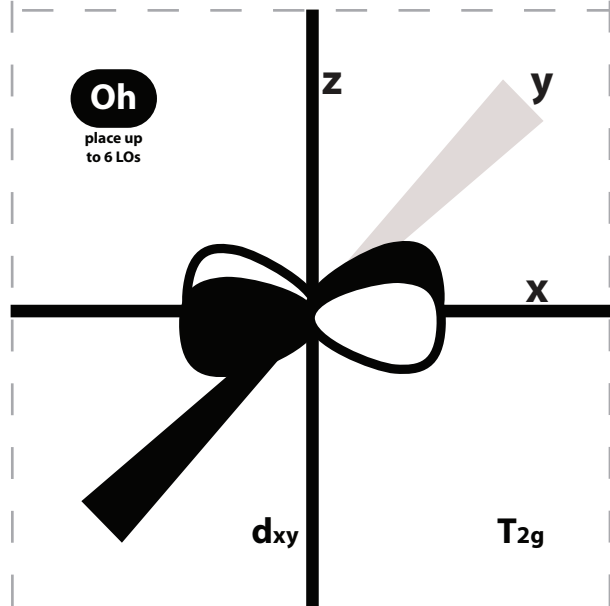
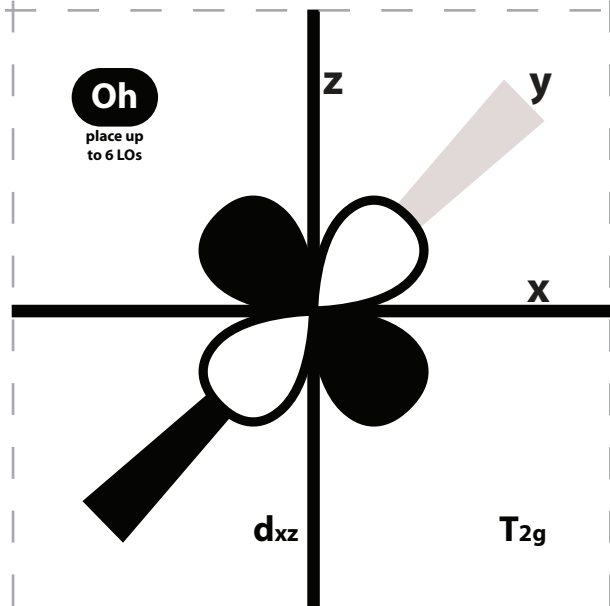


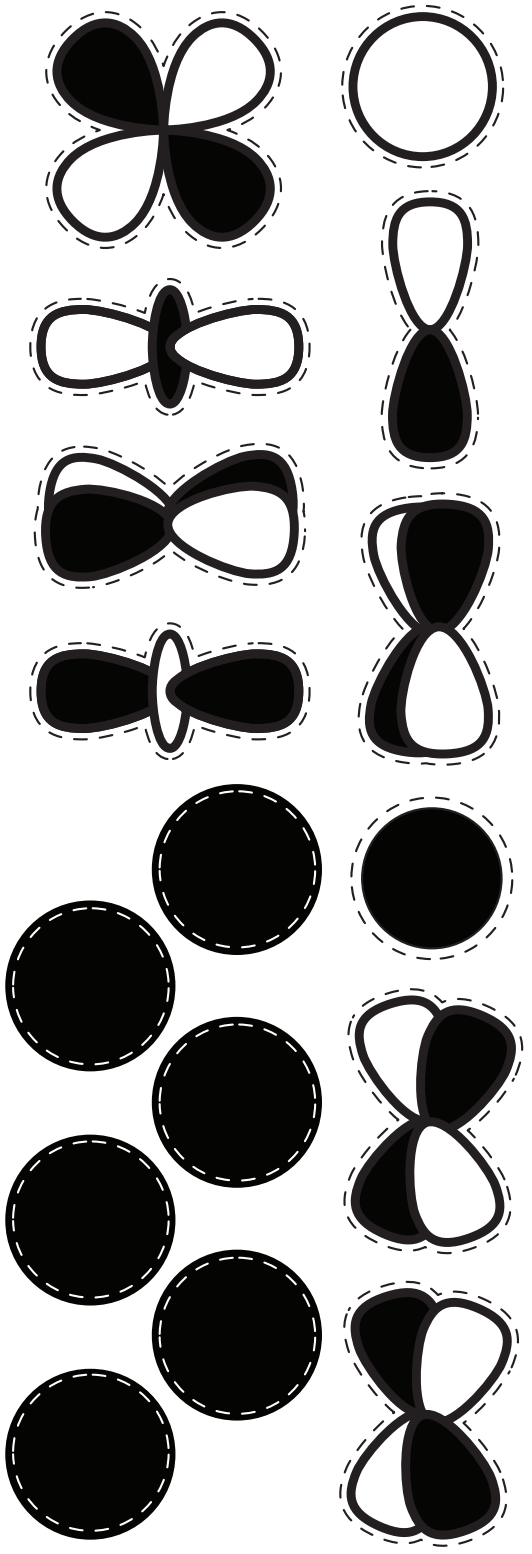












			1	2	1	2
	<i>s</i>					
		<i>d_{xz}</i>				
			3	4	3	4
	<i>P_x or P_y or P_z</i>					
		<i>z²p</i>				
			5	6	5	6
		<i>d_{yz} or d_{xy}</i>				
	<i>x²-y²</i>		1	2	1	2
		<i>z²p</i>				
			3	4	3	4
	<i>s</i>					
			5	6	5	6
	<i>z²-x²</i>		1	2	1	2
			3	4	3	4
	<i>z²-y²</i>		5	6	5	6

WINNING BETS



BETTING AREA



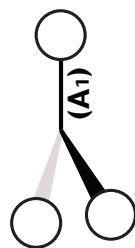
LOSING BETS



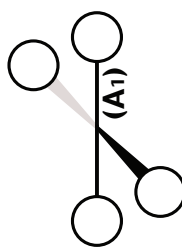
Examples of symmetry adapted linear combinations of ligand atomic orbitals

Molecule
(Point Group)

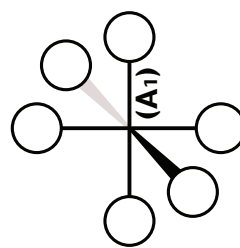
LACOs
(Multiken Symbol)



BH₃
(D_{3h})



[AuCl₄]⁻
(D_{4h})



[PtCl₆]²⁻
(O_h)

BETTING AREA

YES

YES

YES

NO

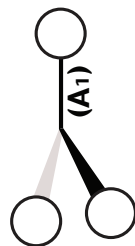
NO

NO

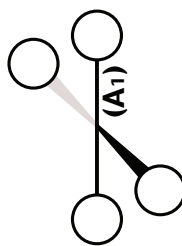
Examples of symmetry adapted linear combinations of ligand atomic orbitals

Molecule
(Point Group)

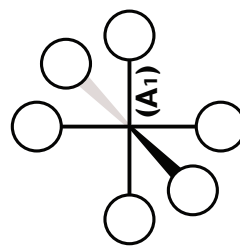
LACOs
(Multiken Symbol)



BH₃
(D_{3h})



[AuCl₄]⁻
(D_{4h})



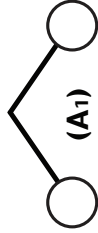
[PtCl₆]²⁻
(O_h)

Examples of symmetry adapted linear combinations of ligand atomic orbitals

Molecule
(Point Group)

LACOs
(Mulliken Symbol)

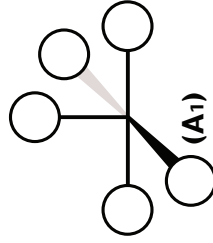
H₂O
(C_{2v})



NH₃
(C_{3v})



[SeF₅]⁻
(C_{4v})



Examples of symmetry adapted linear combinations of ligand atomic orbitals

Molecule
(Point Group)

LACOs
(Mulliken Symbol)

H₂O
(C_{2v})



NH₃
(C_{3v})



[SeF₅]⁻
(C_{4v})

