

Announcements – Lecture VIII – Monday, June 3rd

3RD LAB: TUE, JUN 4, 1:30-4:30

EXAM I STATS:

PAPERS: 33

HIGH SCORE: 100

AVERAGE : 79

>90: 7

>80: 12

>70: 7

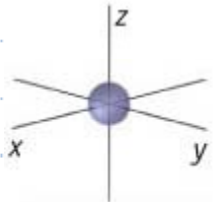
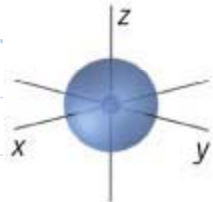
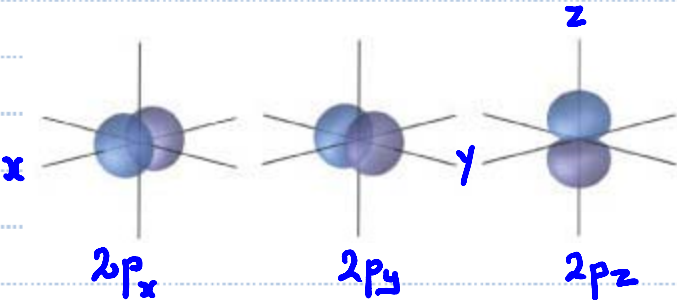
>60: 3

>55: 2

<55: 2

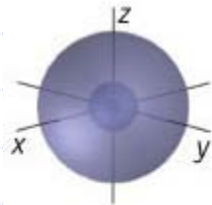
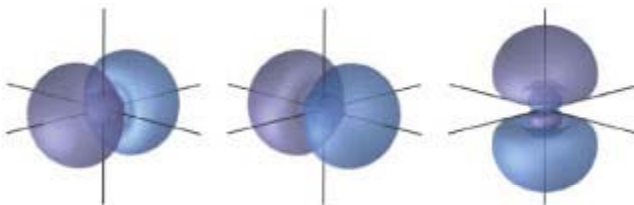
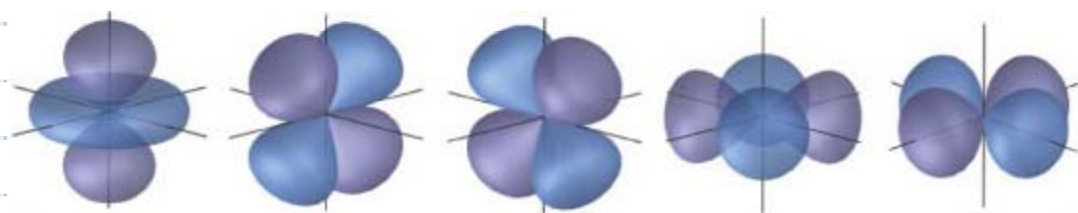
6.5 Quantum Numbers, Orbitals, and Nodes

B: Orbitals – $n = 1$ and 2

n	Orbitals		#	Label
1	1		1	1s
2	4	 	1 3	2s 2p

6.5 Quantum Numbers, Orbitals, and Nodes

B: Orbitals – $n = 3$

n	Orbitals		#	Label
			1	3s
3	9		3	3p
		 <p data-bbox="567 1331 672 1412">$3d_{z^2}$</p> <p data-bbox="798 1331 903 1412">$3d_{xy}$</p> <p data-bbox="1008 1331 1113 1412">$3d_{yz}$</p> <p data-bbox="1218 1331 1323 1412">$3d_{xz}$</p> <p data-bbox="1428 1331 1533 1412">$3d_{x^2-y^2}$</p>	5	3d

6.5 Quantum Numbers, Orbitals, and Nodes

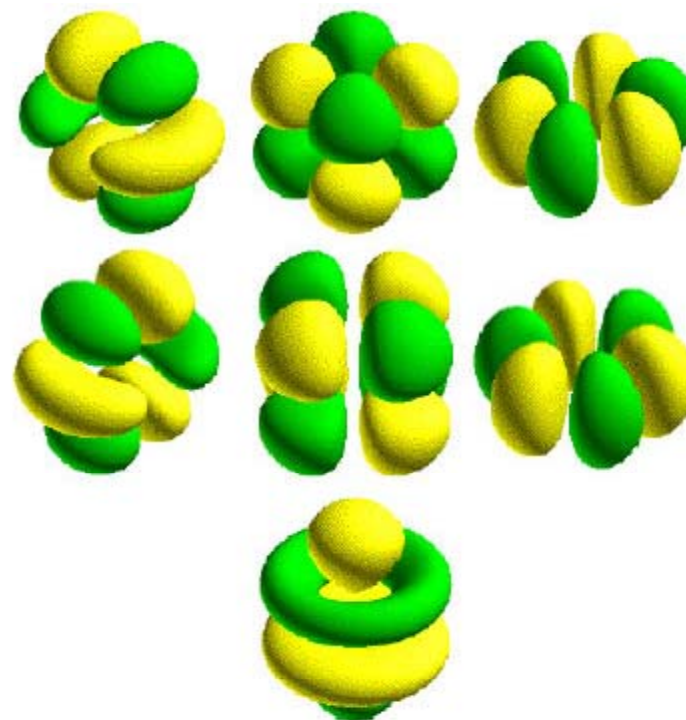
B: Orbitals – $n = 4$

$n = 4$

16 Orbitals

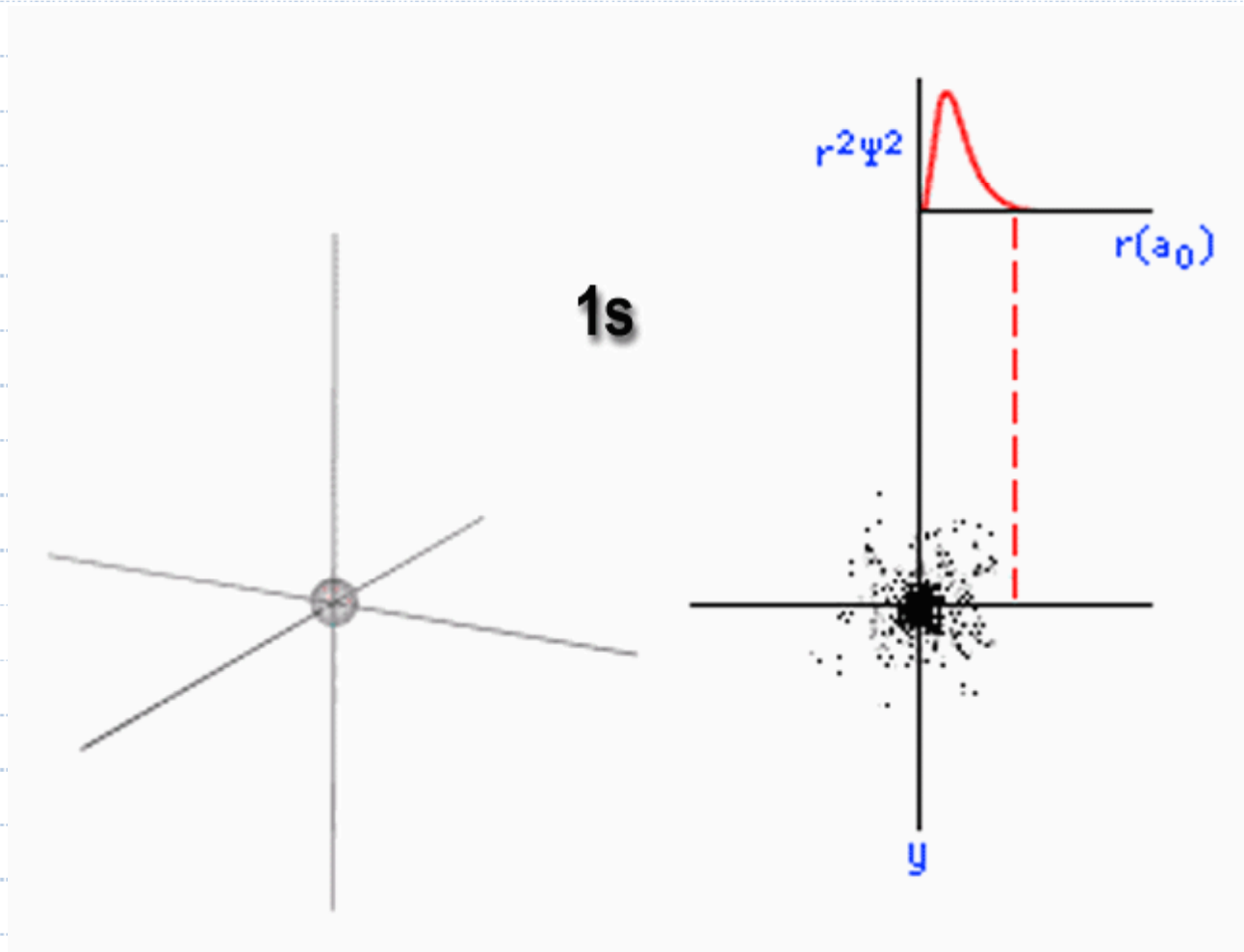
1	4s
3	4p
5	4d
7	4f

f orbitals



6.5 Quantum Numbers, Orbitals, and Nodes


B: Orbital Shapes with Increasing n



6.5 Quantum Numbers, Orbitals, and Nodes


C: Nodes

	1s	2s	3s	4s
PLANAR nodes :	0	0	0	0
SPHERICAL nodes:	0	1	2	3



 Increasing size
 Getting further away from the nucleus

	2p	3p	4p
PLANAR nodes :	1	1	1
SPHERICAL nodes:	0	1	2



	3d	4d
PLANAR nodes	2	2
Spherical nodes	0	1

