

*L-S* coupling

*j-j* coupling

C  
( $Z = 6$ )

Si  
( $Z = 14$ )

Ge  
( $Z = 32$ )

Sn  
( $Z = 56$ )

Pb  
( $Z = 82$ )

$(j_1 j_2) j$

$^1P_1$   
 $^3P_2$   
 $^3P_1$   
 $^3P_0$

$(3/2, 1/2)_1$

$(3/2, 1/2)_2$

$(1/2, 1/2)_1$

$(1/2, 1/2)_0$

Configuration  
of first excited  
 $^1P$  and  $^3P$  terms

2p 3s

3p 4s

4p 5s

5p 6s

6p 7s

