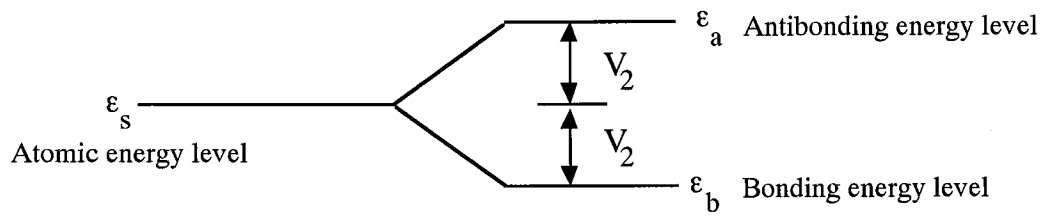
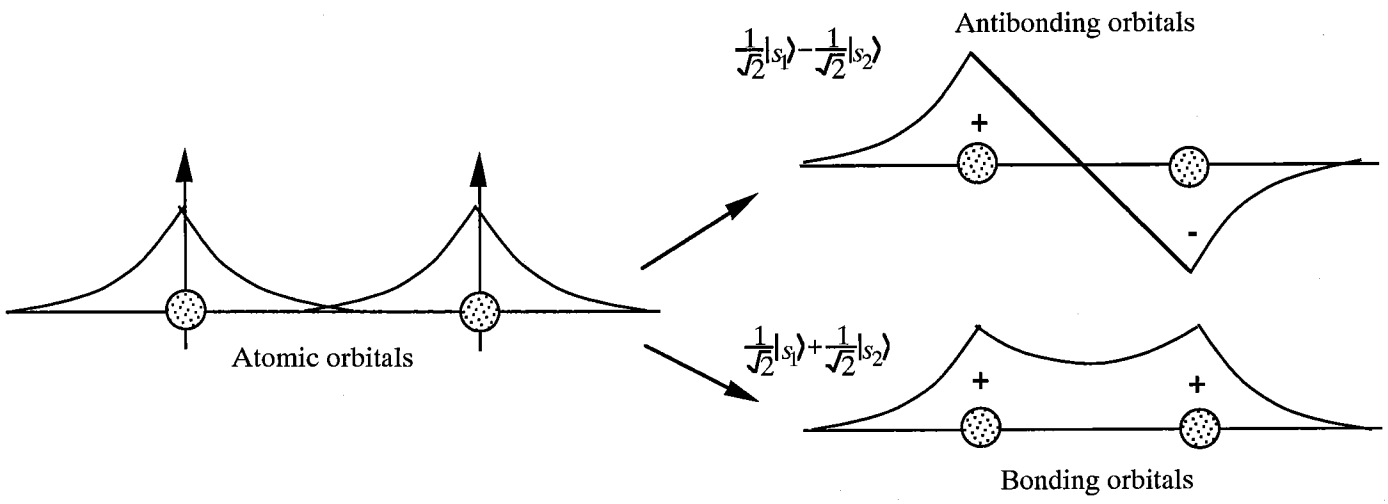


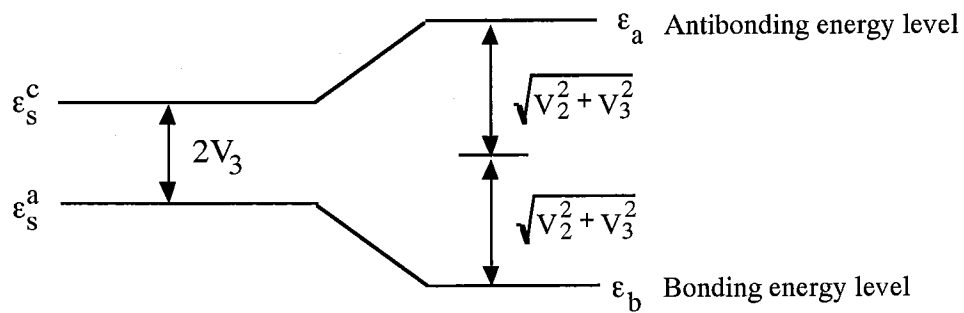
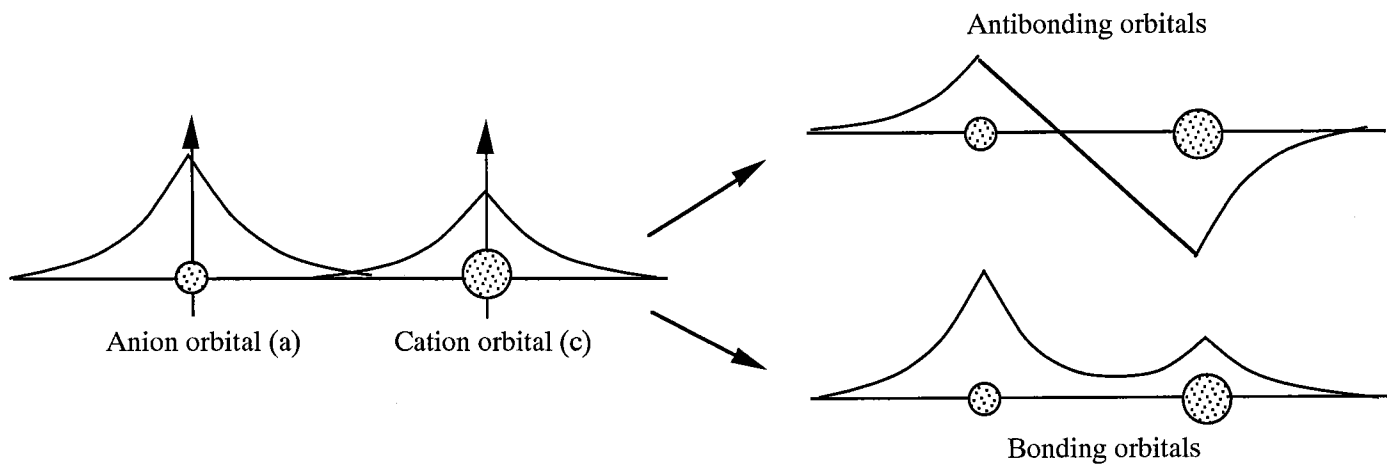
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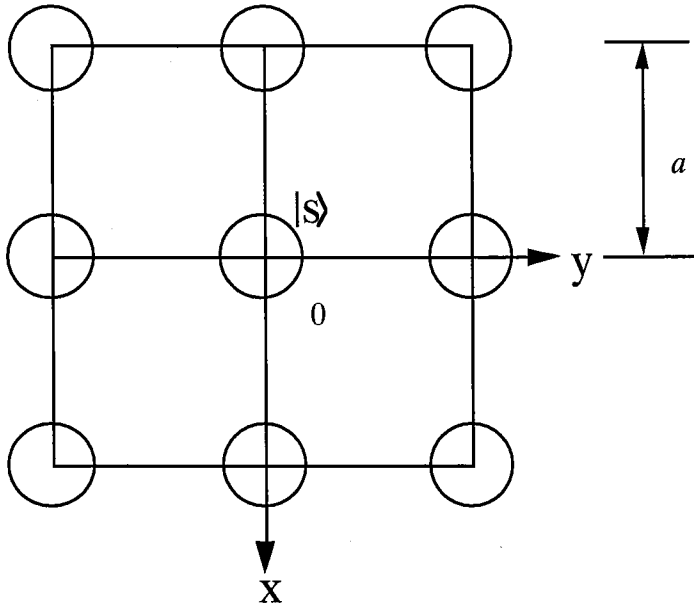
II III IV V VI

	5 B 2.0	6 C 2.5	7 N 3.0	8 O 3.5
	13 Al 1.5	14 Si 1.8	15 P 2.1	16 S 2.5
30 Zn 1.6	31 Ga 1.6	32 Ge 1.8	33 As 2.0	34 Se 2.4
48 Cd 1.7	49 In 1.7	50 Sn 1.8	51 Sb 1.9	52 Te 2.1
80 Hg 1.9	81 Tl 1.8	82 Pb 1.8	83 Bi 1.9	84 Po 2.0

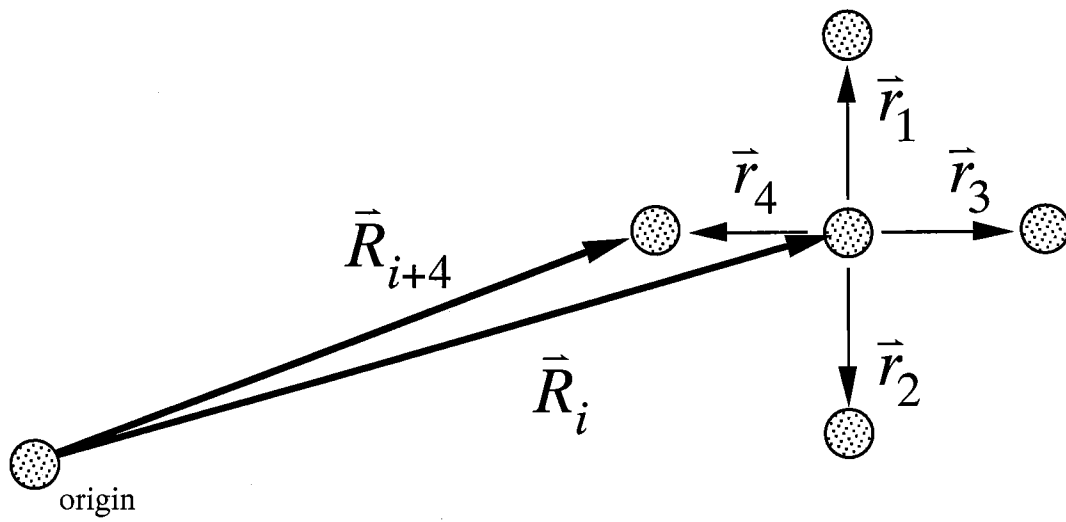
$s^2$   $s^2 p^1$   $s^2 p^2$   $s^2 p^3$   $s^2 p^4$

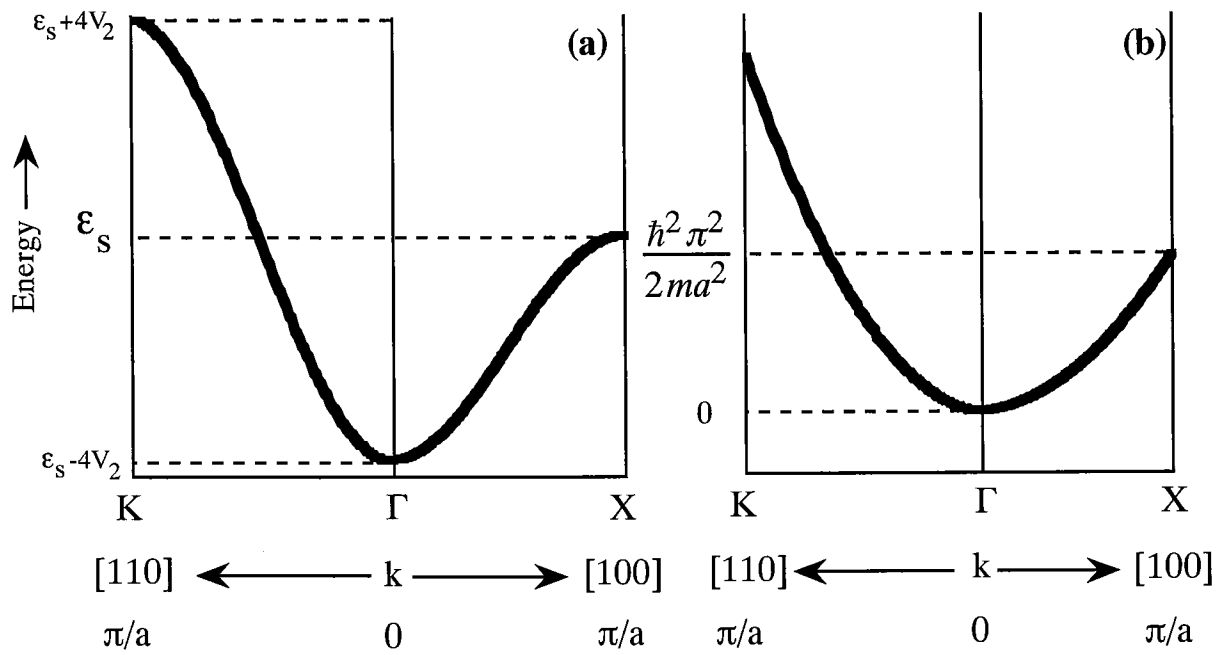


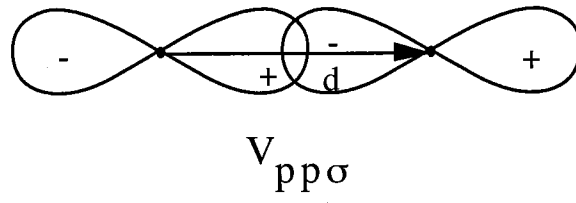
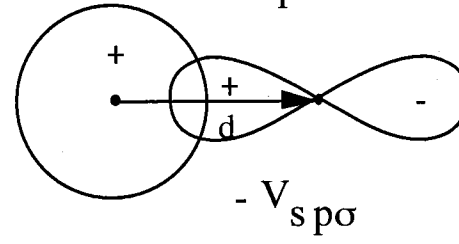
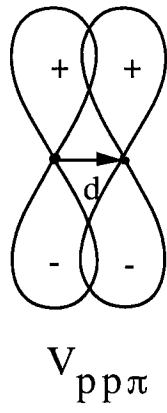
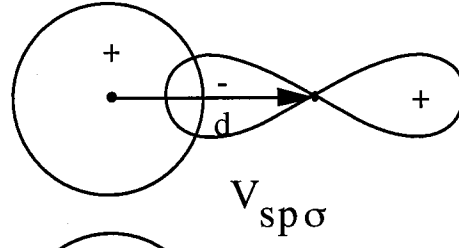
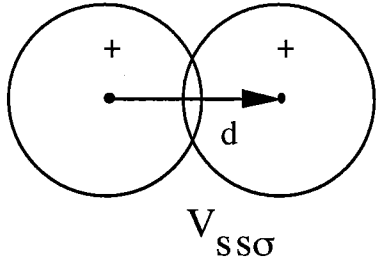




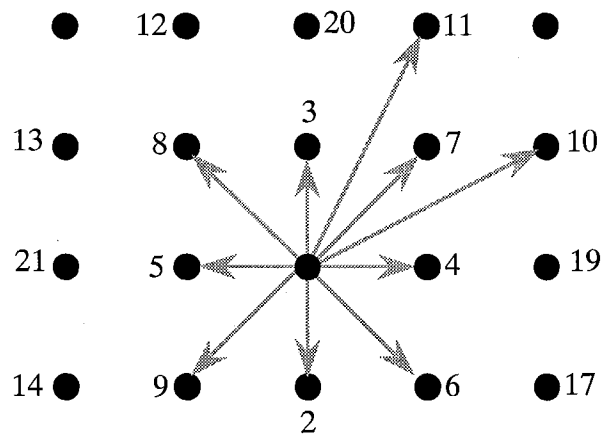
2.5



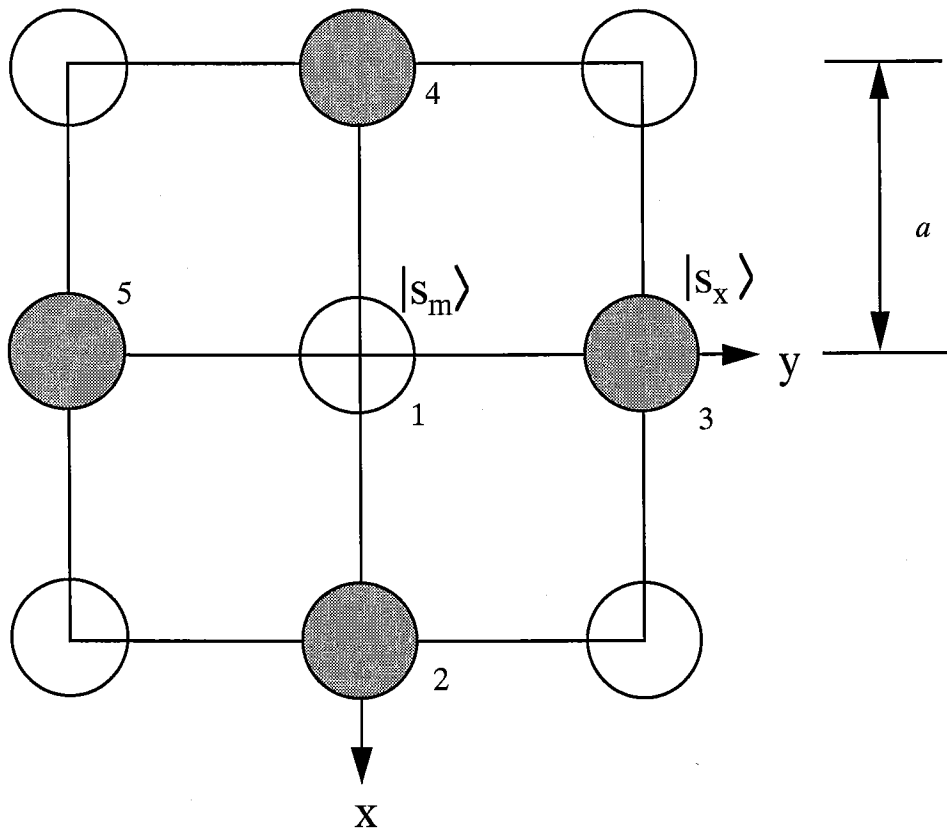




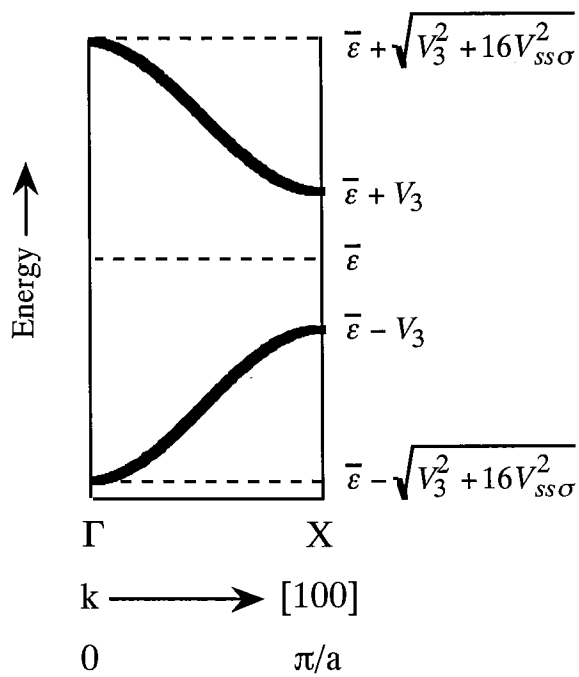




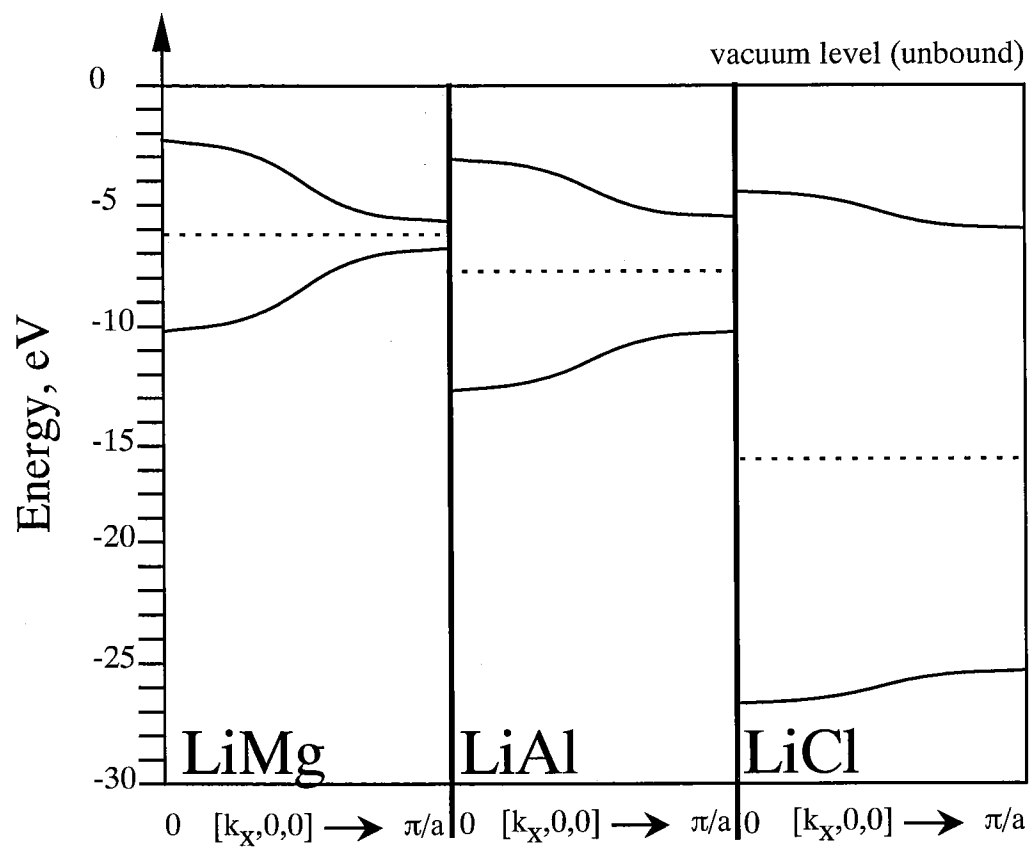
80

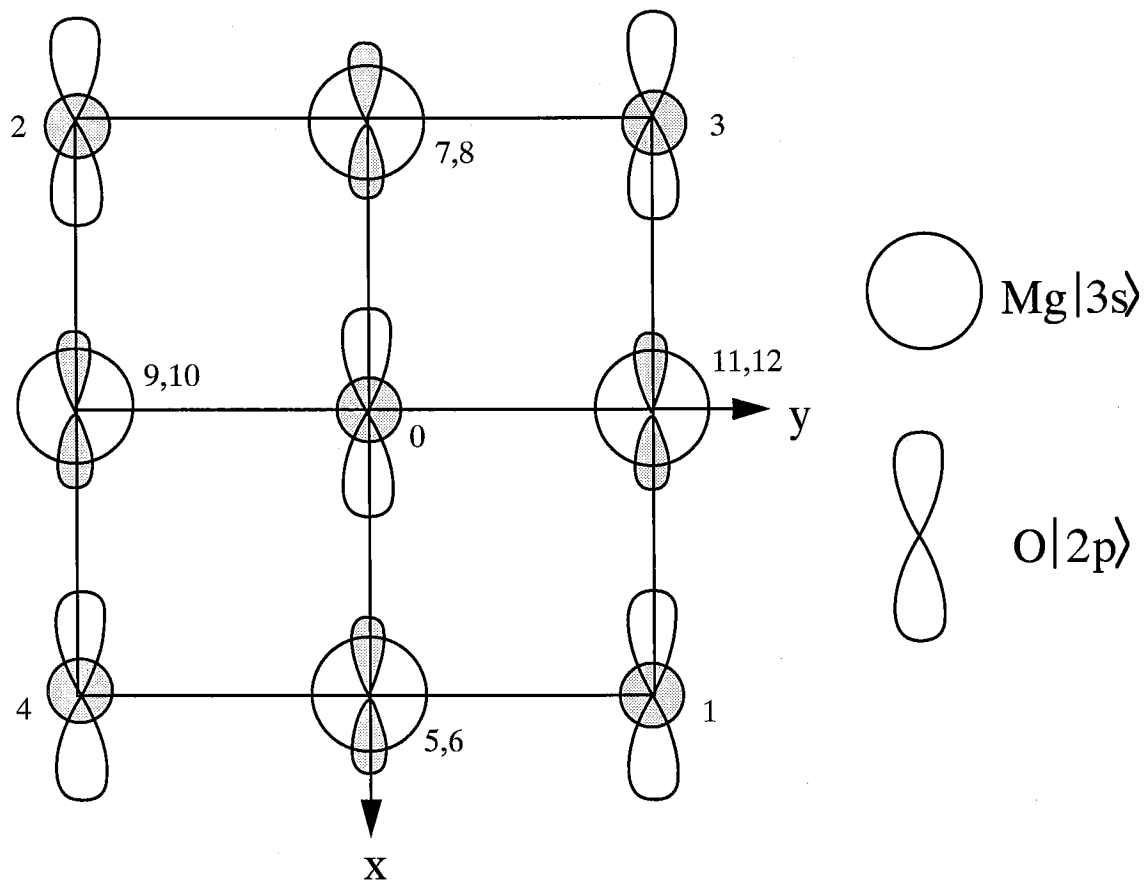


9.10

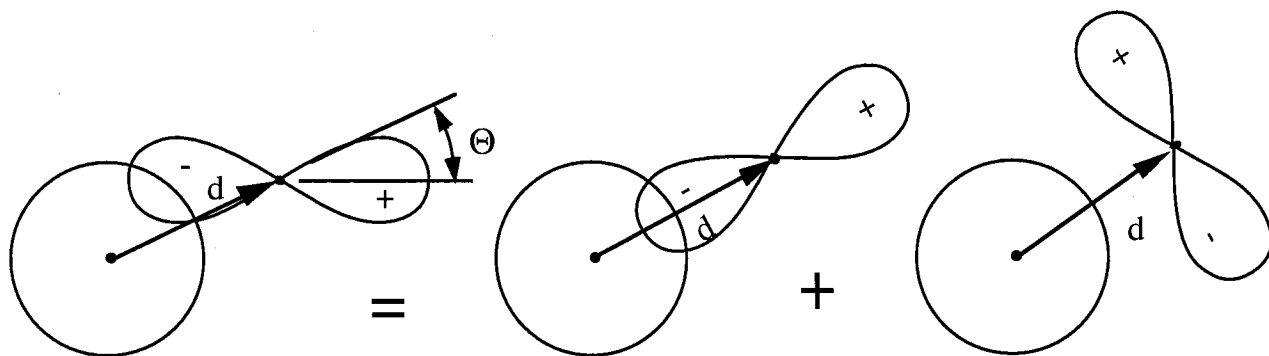


9.11

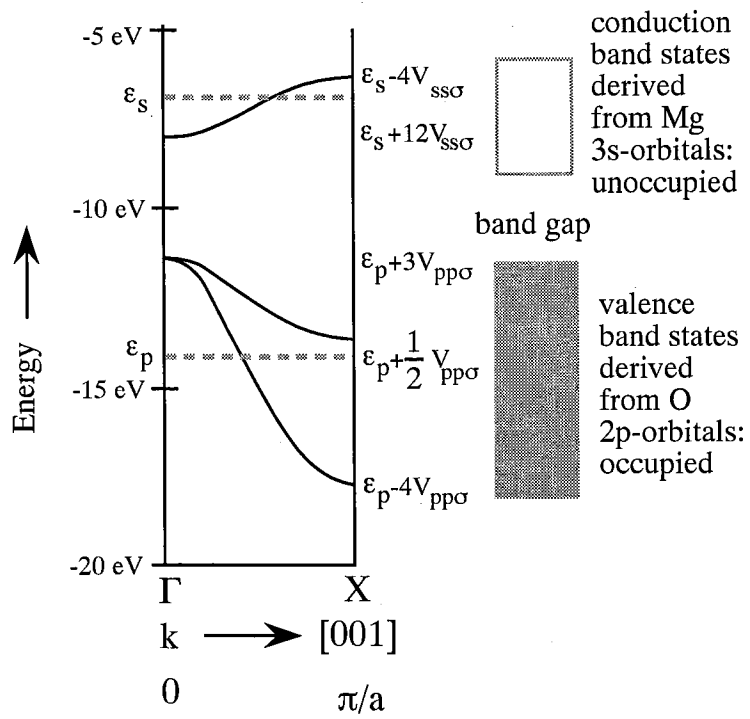




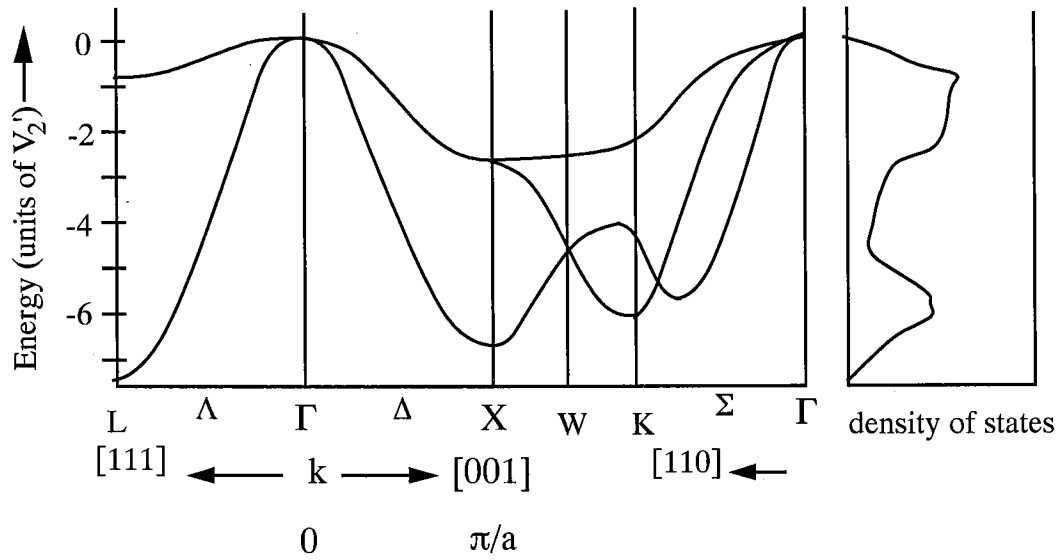
9.13



$$E_{s,x} = \langle s|H|p_x \rangle = V_{sp\sigma} \cos\Theta + 0 \sin\Theta$$

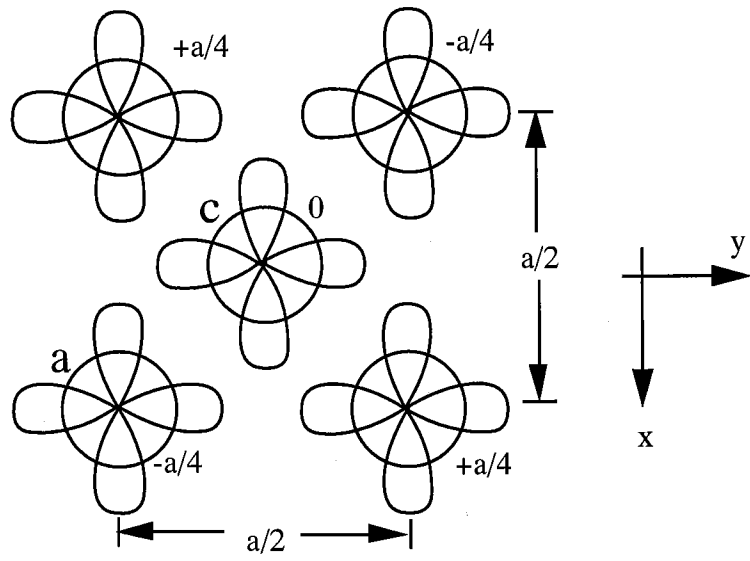


7.15



9.16





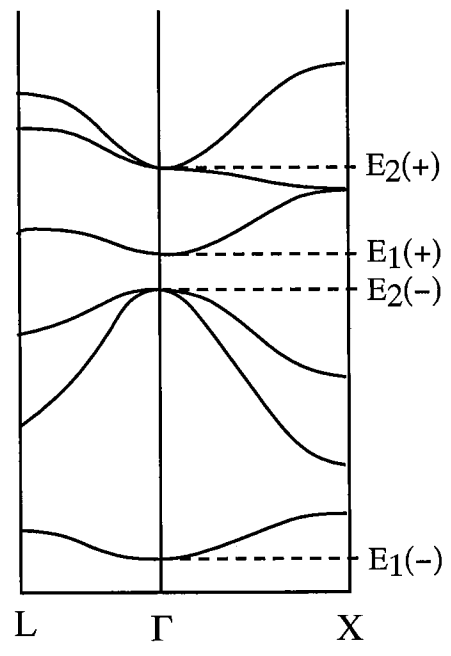
	$s^c$	$s^a$	$p_x^c$	$p_y^c$	$p_z^c$	$p_x^a$	$p_y^a$	$p_z^a$
$s^c$	$\epsilon_s^c$	$E_{ss}g_0$	0	0	0	$E_{sp}g_1$	$E_{sp}g_2$	$E_{sp}g_3$
$s^a$	$E_{ss}g_0$	$\epsilon_s^a$	$-E_{sp}g_1^*$	$-E_{sp}g_2^*$	$-E_{sp}g_3^*$	0	0	0
$p_x^c$	0	$-E_{sp}g_1$	$\epsilon_p^c$	0	0	$E_{xx}g_0$	$E_{xy}g_3$	$E_{xy}g_2$
$p_y^c$	0	$-E_{sp}g_2$	0	$\epsilon_p^c$	0	$E_{xy}g_3$	$E_{xx}g_0$	$E_{xy}g_1$
$p_z^c$	0	$-E_{sp}g_3$	0	0	$\epsilon_p^c$	$E_{xy}g_2$	$E_{xy}g_1$	$E_{xx}g_0$
$p_x^a$	$E_{sp}g_1^*$	0	$E_{xx}g_0^*$	$E_{xy}g_3^*$	$E_{xy}g_2^*$	$\epsilon_p^a$	0	0
$p_y^a$	$E_{sp}g_2^*$	0	$E_{xy}g_3^*$	$E_{xx}g_0^*$	$E_{xy}g_1^*$	0	$\epsilon_p^a$	0
$p_z^a$	$E_{sp}g_3^*$	0	$E_{xy}g_2^*$	$E_{xy}g_1^*$	$E_{xx}g_0^*$	0	0	$\epsilon_p^a$

energy ↑

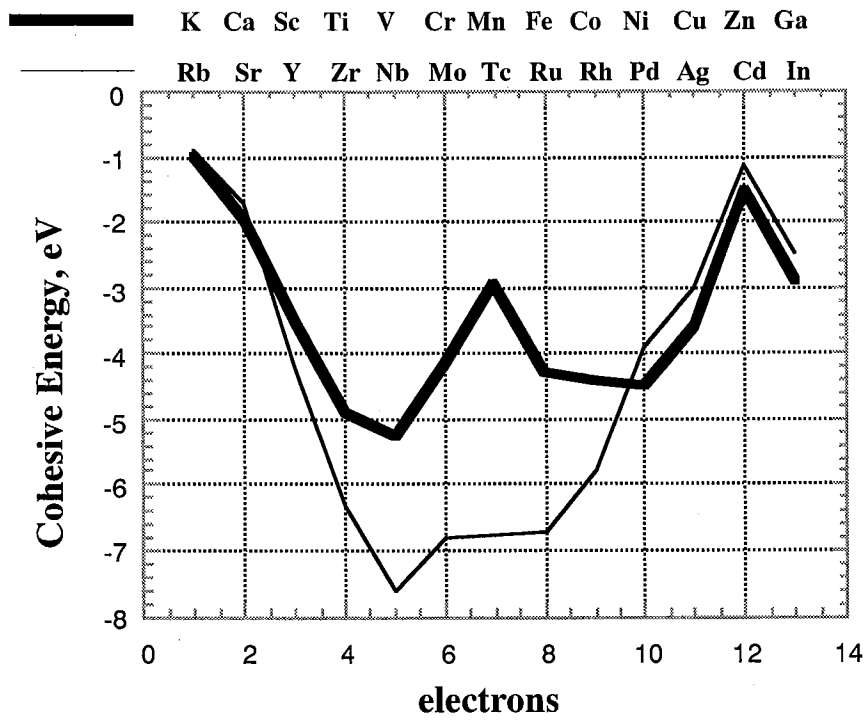
conduction band

band gap

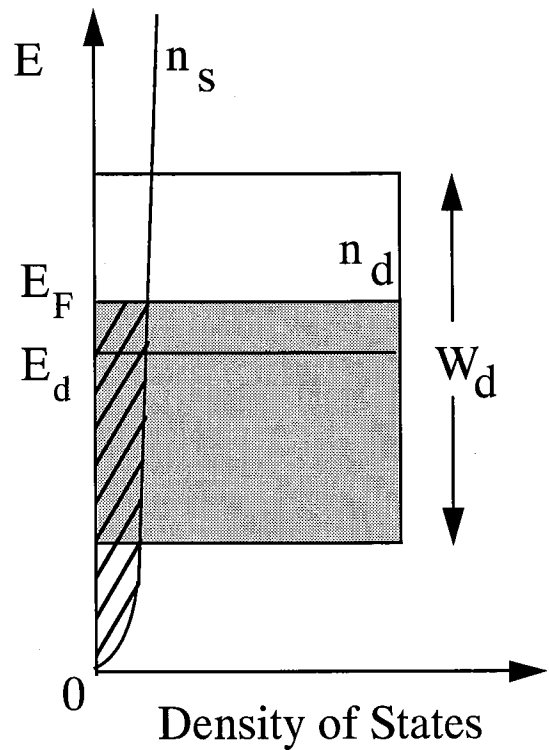
valence band

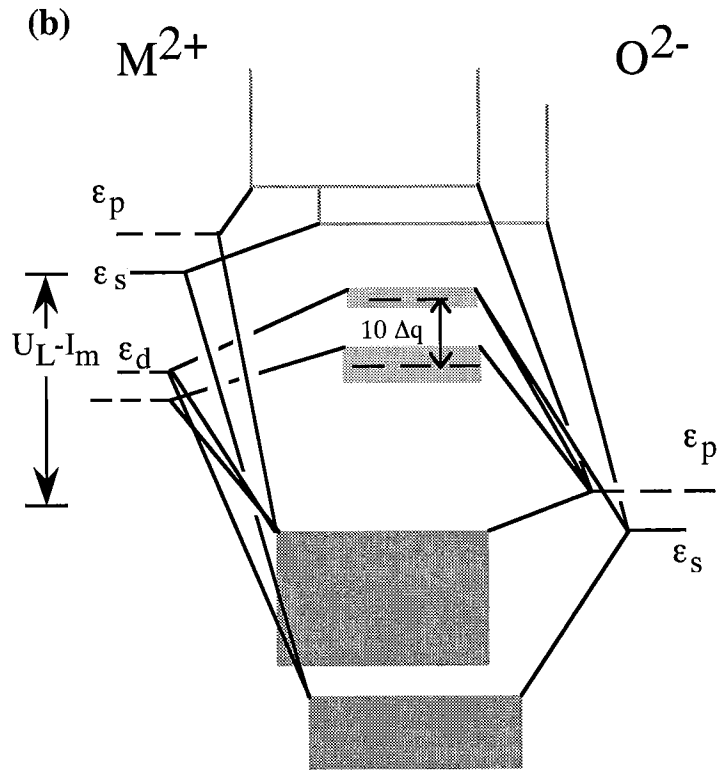
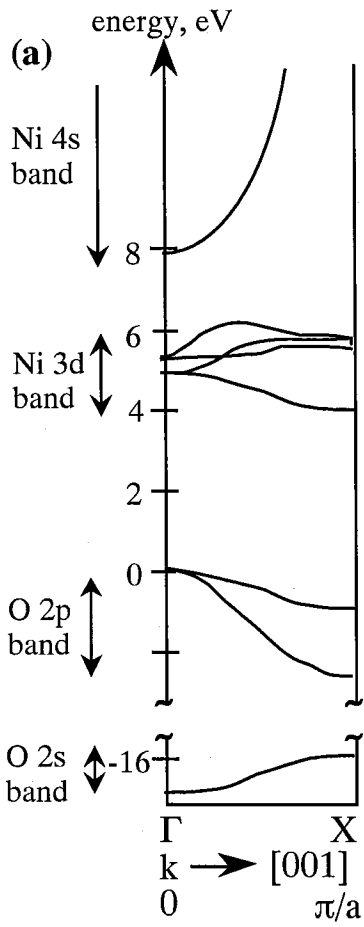


2.18

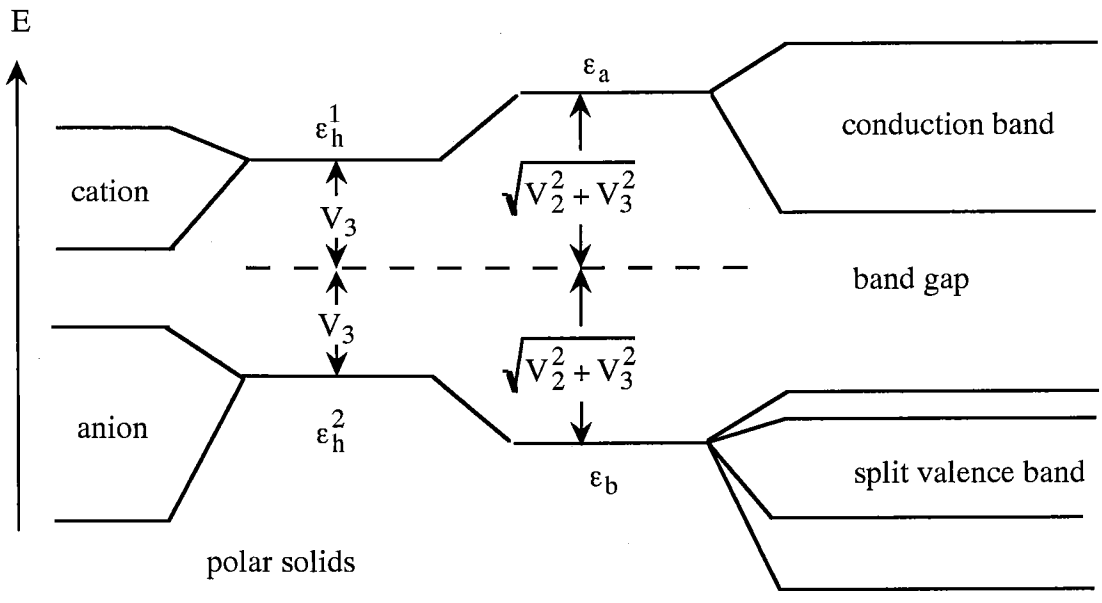
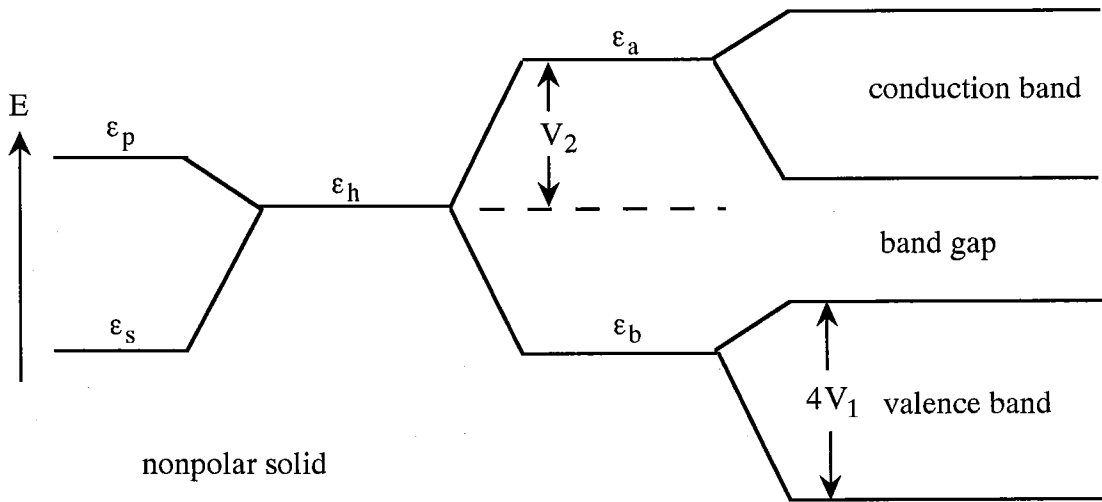


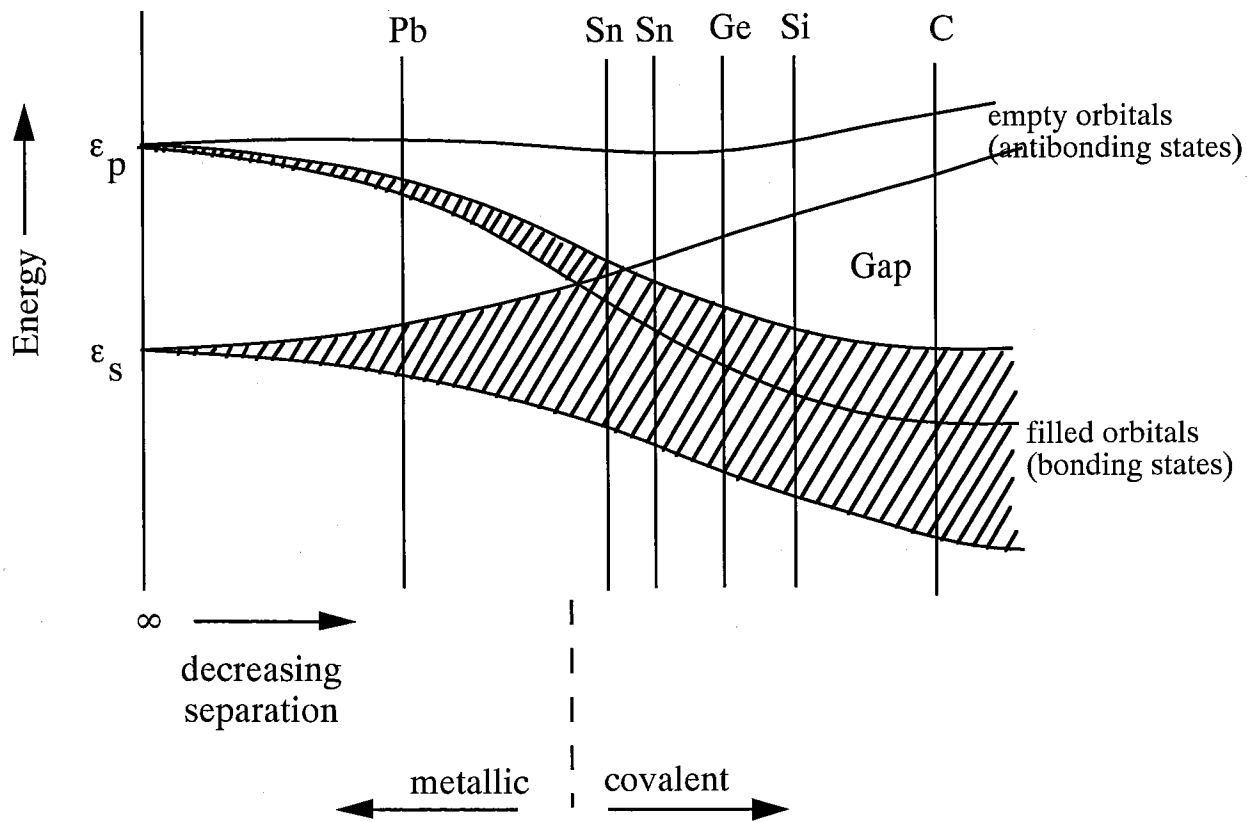
1.1.17





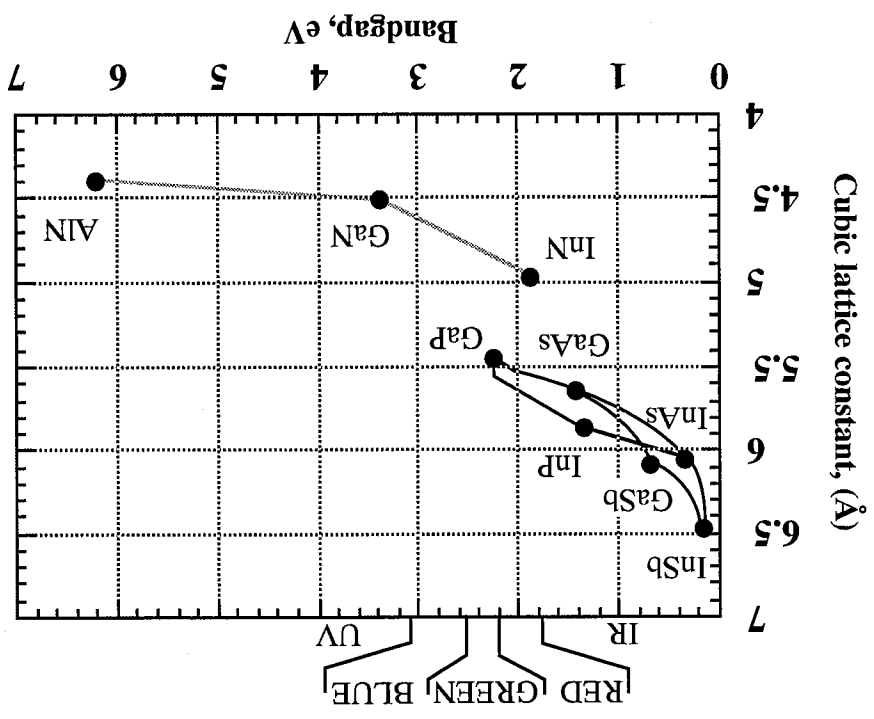
9.2.2

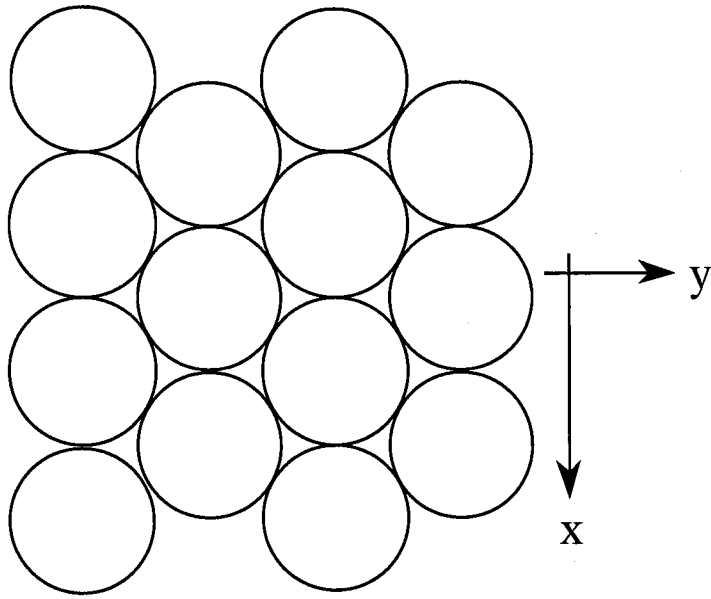




9-24







9.26

