

PT Trends

Radius ↑ increases ↓, ←

IE → E (J) to remove most loosely held valence e-
 (large radius = low IE)

EA (J) → liking for e- (hold them close to you)

Nov 2-7:23 AM

7, 15 (Ar) (Kr) (Xe)

10

1s² 2s² 2p⁶ 3s² 3p⁶

2 - 8 - 8

n=3

Stronger

36

3

1s² 2s² 2p⁶ 3s² 3p⁶ 3d¹⁰ 4s² 4p⁶

2 - 8 - 18 - 8

Nov 2-7:54 AM

Ionic Radius vs. Atomic Radius

<u>Metals</u>	<u>Non-Metals</u>
<ul style="list-style-type: none"> - lose e⁻ - larger radius - low IE, EA 	<ul style="list-style-type: none"> - gain e⁻ - small radius → larger IE, EA.
<ul style="list-style-type: none"> - Shiny (Luster) - bendable (malleable) - good conductors of heat & electricity 	<ul style="list-style-type: none"> - Dull - brittle - poor conductors
<p>Ⓛ Side PT 2/3 elements M</p>	<p>Ⓚ Side PT 1/3 NM</p>

Nov 2-8:01 AM

<u>Metal Atom</u>	<u>Metal Ion</u>
<p>Na⁰ 11p, 11e⁻, 12n</p> <p style="color: red; font-size: 1.2em;">11 ↔ 11</p> <p style="color: red; font-size: 1.2em;">P e⁻</p>	<p>Na⁺</p> <p>11p, 10e⁻, 12n</p> <p style="color: red; font-size: 1.2em;">11p ← 10e⁻</p>
<p>Non Metal Atom</p> <p>P⁰ 15p, 15e⁻, 16n</p> <p style="color: red; font-size: 1.2em;">15p ↔ 15e⁻</p>	<p>Non-Metal Ion</p> <p>P⁻³</p> <p>15p, 18e⁻, 16n</p> <p style="color: red; font-size: 1.2em;">15p → 18e⁻</p>

Nov 2-8:11 AM

Why does radius decrease $L \rightarrow R$

$3p, 3e^-$ $4p, 4e^-$ $5p, 5e^-$ $6p, 6e^-$

- effective shielding properties of core e^- decreases
- Same size shield. \rightarrow more e^- atoms to hide behind it \rightarrow not as efficient.

Nov 2-8:17 AM

Metal vs. nonmetal oxides

① Metal oxide + $2H_2O$

$$MgO + 2H_2O \rightarrow Mg(OH)_2 + H_2O$$

$MgO + HOH \rightarrow Mg(OH)_2$

BASE

② Non-metal oxide

$$CO_2 + H_2O \rightarrow H_2CO_3$$

(Acid)

Nov 2-8:25 AM

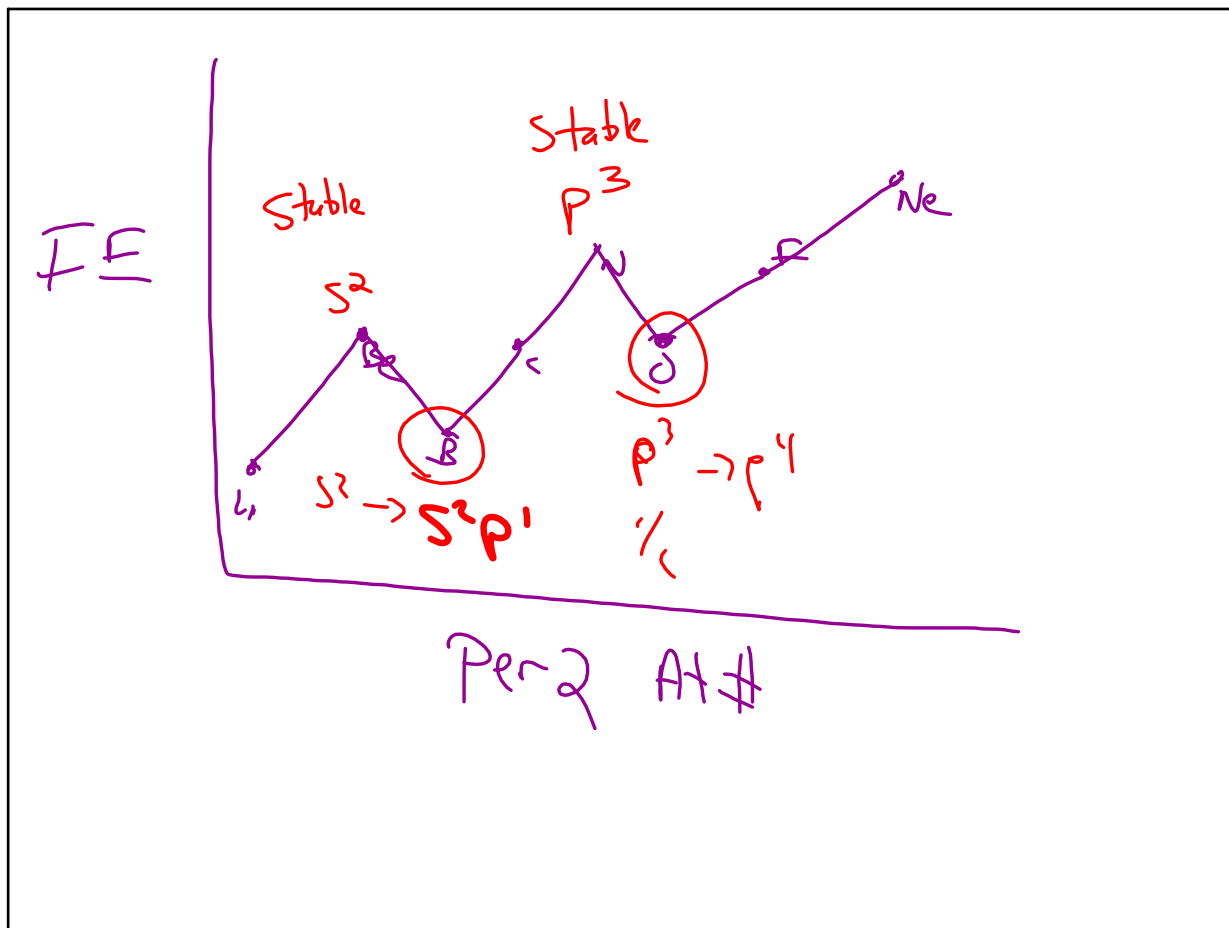
Metalloids
 entire side of box touching
 Staircase
EXCEPT AlP_0

Nov 2-8:34 AM

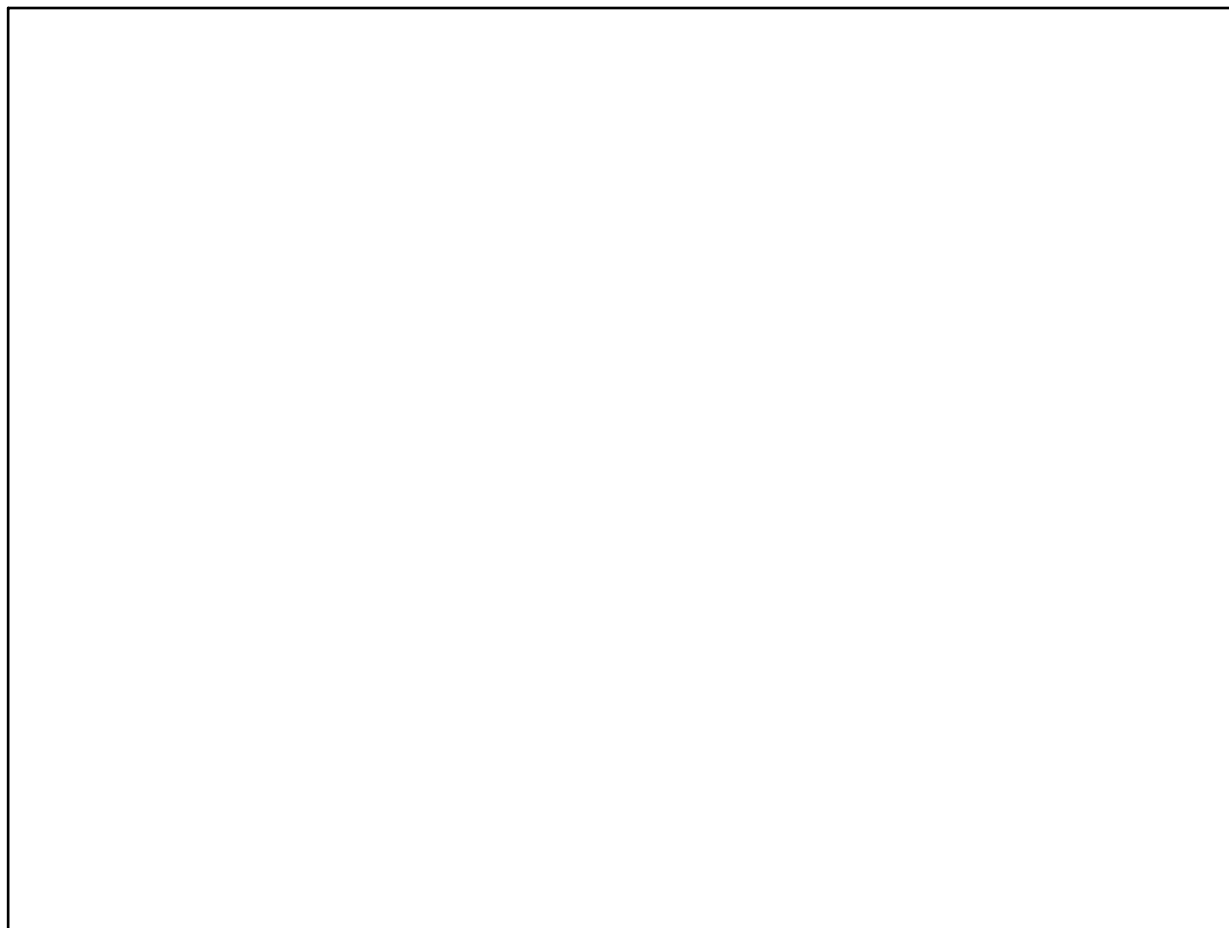
IE * in consistency! *

Li	\uparrow <u>2s</u>	$\frac{1}{2} \uparrow$	}	N	$\uparrow\downarrow$ <u>2s</u>	\uparrow	\uparrow	\uparrow	}		
Be	$\uparrow\downarrow$ <u>2s</u>	full		STABLE	O	$\uparrow\downarrow$ <u>2s</u>	$\uparrow\downarrow$	\uparrow		$\frac{1}{2} \uparrow$	STABLE
B	$\uparrow\downarrow$ <u>2s</u>	\uparrow		<u>p</u>	F	$\uparrow\downarrow$ <u>2s</u>	$\uparrow\downarrow$	$\uparrow\downarrow$		\uparrow	<u>2p</u>
C	$\uparrow\downarrow$ <u>2s</u>	\uparrow		\uparrow	Ne	$\uparrow\downarrow$ <u>2s</u>	$\uparrow\downarrow$	$\uparrow\downarrow$		$\uparrow\downarrow$	full
			<u>2p</u>						<u>2p</u>		

Nov 2-8:36 AM



Nov 2-8:40 AM



Nov 2-8:40 AM