ARTICLE 16

Excited electron: SPA III: Mc Flui Transform in Silpovgar III and IV

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ABSTRACT

This is 16th article of 24 dedicated to atomic model based on Victoria equation (Articles index is at end). Relation of Silva de Peral y Alameda (SPA) is introduced in [5] and refers to excited states and provides linearity between specific energy relationship and LAN of Serelles Secondary Line [2,4] that allows creation of said secondary line obtained from Torrebotana Central Line [1]. SPA in jump $1s^2 \rightarrow 1sns$ (Term=^3S and J=1) and $n_ss \rightarrow ns$ is treated in [5] and [6] respectively.

[6] is first and this is second of three articles that make up a unit. First part of this article concludes Silpovgar study on $n_ss \rightarrow ns$ with Mc Flui transform for Silpovgar III and part two of Silpovgar I. Its second part is centred on other jumps behaviour that leads to confluence of Silpovgar IV.

KEYWORDS

Relation of Silva de Peral y Alameda, SPA relation, Silpovgar I III and IV, Mc Flui transform, FEC, AFEC, FEC type II, LAN.

INTRODUCTION

This is second of triple article initiated with Relation of Silva de Peral & Alameda II: jump from n_ss to ns [6]. Scheme, formulas and figures numbering is unique for three articles giving greater unity sense. Abbreviations Table is at end article. Scheme is as follows:

SPA III: Mc Flui transform for Silpovgar III and Silpovgar IV.

3) Mc Flui transform for Silpovgar III
4) Silpovgar I: SPA convergence (Indian tents under Silva dominion) Part two.
5) Other electronic jumps
   - A) $n_ss \rightarrow np$ (Term=$^2P^0$ and J=3/2)
     - A.1.) $n_ss \rightarrow np$ (Term=$^2P^0$ and J=3/2) with $n>n_s$
       Introduction to A.2. is P65 Fundamental Relation of Silva de Peral y Alameda type II
     - A.2.) $n_ss \rightarrow np$ (Term=$^2P^0$ and J=3/2) with $n=n_s$

   Silpovgar IV, confluence arrows of different isoelectronic series with FEC adapted, is introduction to B) and C).

   B) n_s(p or s)$\rightarrow ns$ (Term=^2S and J=1/2) with FEC adapted.

   In general, this point is applied to any $n_s(p^y \text{ or } s^x) \rightarrow n_s(p^{y-1} \text{ or } s^{x-1})ns$
   P57 FEC adapted or AFEC

3) Mc Flui transform for Silpovgar III

Steps to be taken for Mc Flui transform for Silpovgar III (steps are done for 4s→5s (Term=^{2}S and J=1/2) of Figure 6):

1) One isoelectronic series is selected. In this case, K isoelectronic series is taken.
2) Middle Y-axis (9) and X-axis (10) point between LAN when FEC=1 (8) and LAN=0 is calculated:

(8) LAN(FEC=1)=f+g*FEC=5,6867-2,1037*1=3,5830 Lanitos

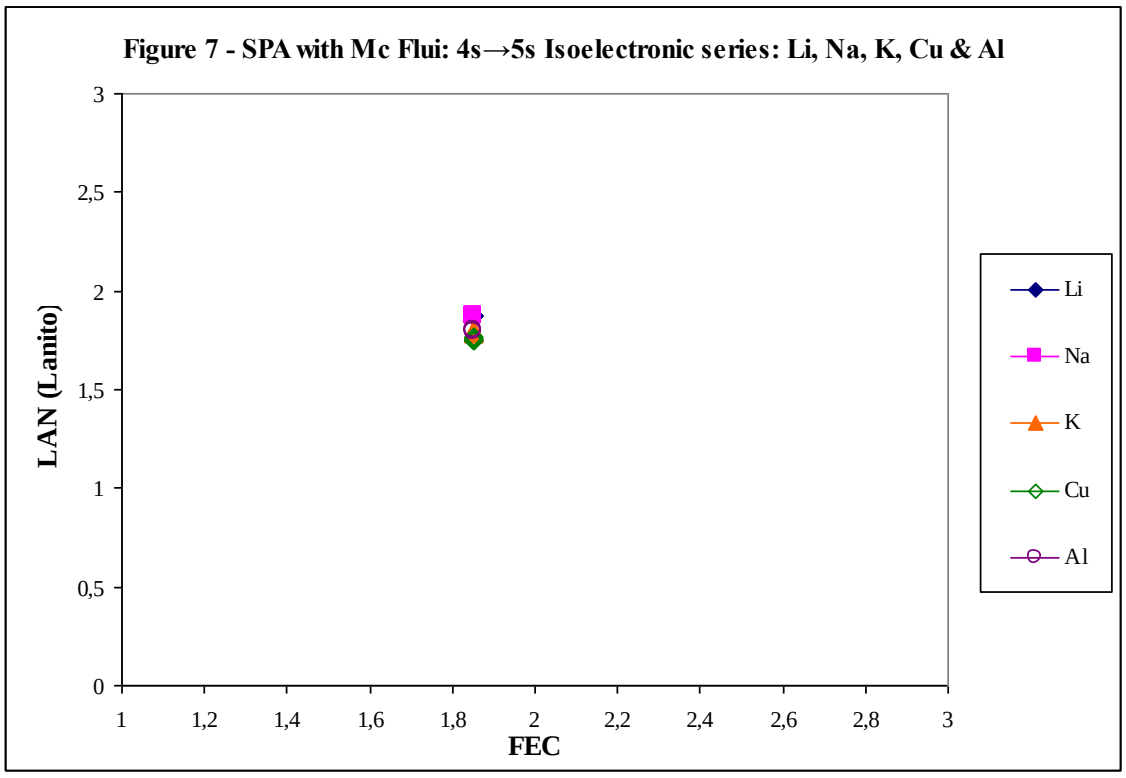
(9) Middle Y-axis=semiY=3,5830/2=1,7915

$$(10)\text{Middle X}-\text{axis} = \frac{(\text{Middle Y}-\text{axis}) - (\text{Y}-\text{intercept})}{\text{slope}} = \frac{1{,}7915 - 5{,}6867}{-2{,}1037} = 1{,}8516$$

3) All LAN is calculated based on that Middle X-axis point. For example, in Li(I) (11):

(11) Y-axis=LAN+(semiX-FEC(Li))*slope$_{\text{LI series}}$=
0,400623+(1,8516-2,57800)(-2,0271)=1,8731

If all points are calculated is obtained **Figure 7**. Figure 7 is compaction of all jumps represented in Figure 6 in apparent single point and range axes of Figure 6 has been maintained to observe change towards compaction.



Movement towards coordinate origin is realized for best study of said apparent compaction to single point of Figure 7. For this, all points are modified towards origin (12):

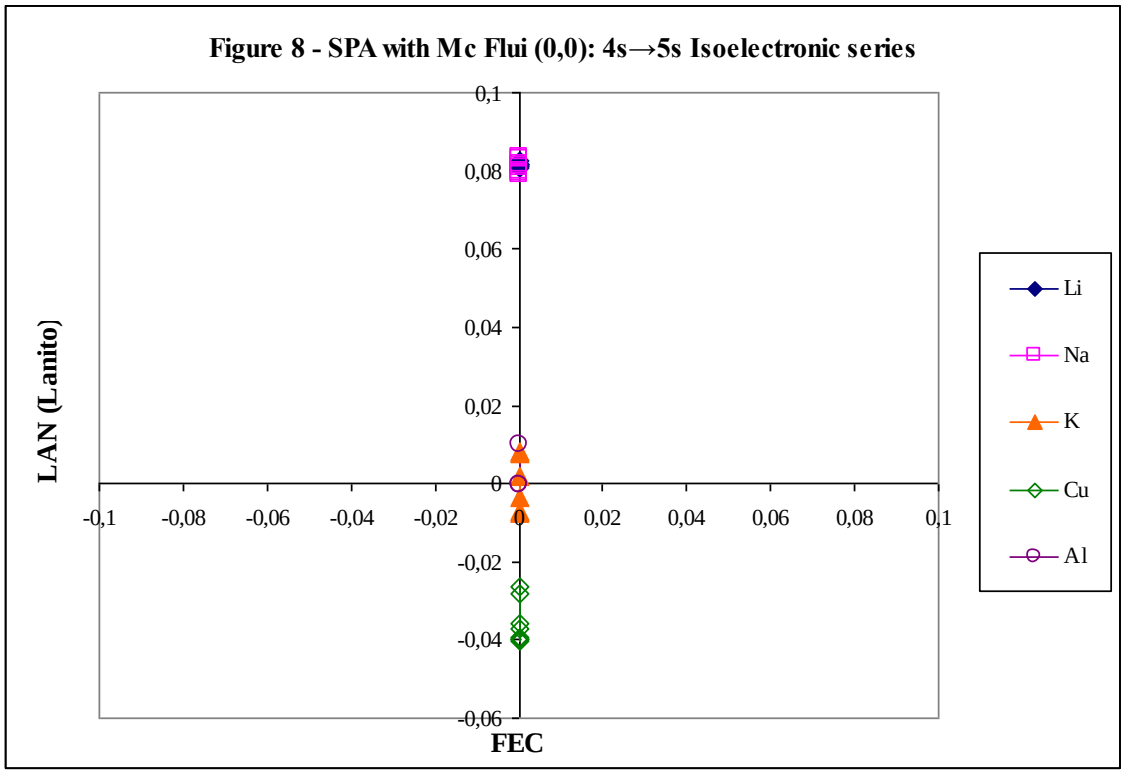
(12) x=0 y=(Y-axis)-(Middle Y-axis)=LAN displacement=ΔLAN

And therefore in Lithium example (13):

(13) x=0 y=(Y-axis)-(Middle Y-axis)= 1.8731-1.7915=0.08163= LAN displacement=ΔLAN

SPA with Mc Flui towards origin for Li(I) 4s→5s: (0,0.08163)

Figure 6 becomes **Figure 8** with Mc Flui transform carried to origin.



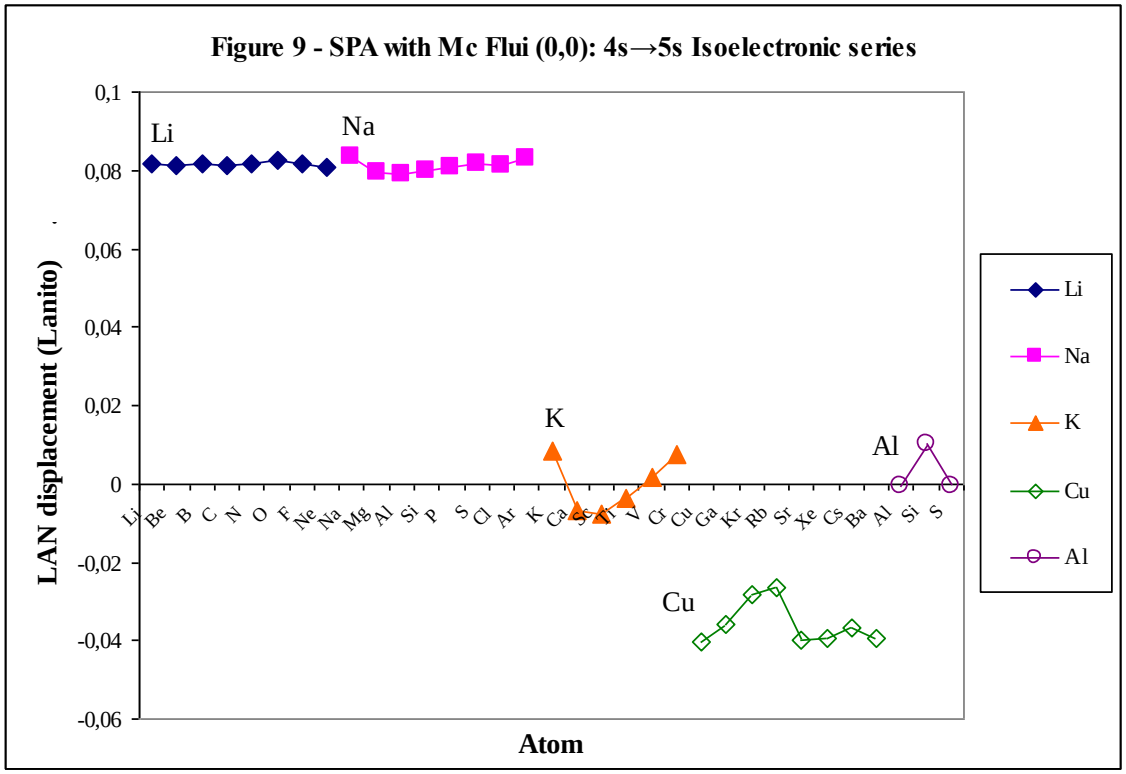
Main conducts are:

* Grouping points of each isoelectronic series which is reflection of their good linearity ($R^2 \rightarrow 1$ in Table 10).
* Li (2s→4s→5s) and Na (3s→4s→5s) isoelectronic series are located together.
* K (4s→5s) and Al isoelectronic series are also situated in same strip. Al is 3p, but inaugurates ns configuration when n=4 (3p→4s→5s). This fact is in line with what has been proven for transition metals (3d→4s→5s) of K isoelectronic series. Up to now, even transition metals and Al isoelectronic series, [Ne]ns with Term=^{2}S and J=1/2 is its

start and final configuration in studied jump. Check to see if is applicable for configurations with different start jump, for example with Mg isoelectronic series:

Mg isoelectronic series $[Ne]3s^2 \rightarrow [Ne]3s4s \rightarrow [Ne]3s4s$
with (Term=^{3}S and J=1) or (Term=^{1}S and J=0)

* Other isoelectronic series in 4s is Cu (4s→5s) that runs with negative LAN displacement.
* Increase in initial ns causes descent with steps form in LAN displacement. These steps can be best visualized with extension of Figure 8 in **Figure 9**.

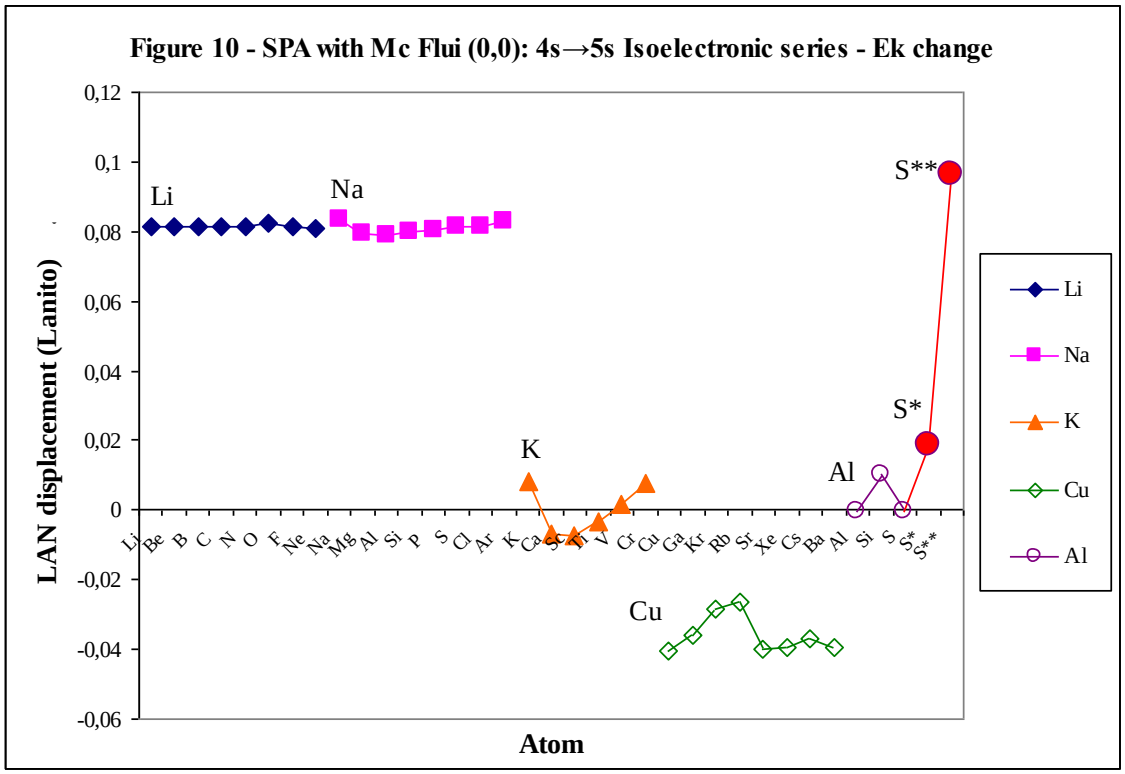


* Sensitivity is high in small E_k variations. S(IV) is isoelectronic with Al(I) and is the last point drawn in Figure 9. In S(IV), E_k required is 38,62115 eV to get from minimum energy state ($3s^2 3p$) to $3s^2 5s$. $E_k(3s^2 5s)$ variations and corresponding changes in LAN and FEC are included in **Table 11**. Modified S(IV) representation is as S* and S** in **Figure 10**. Alterations of S* and S** with respect S are visible in Figure 10 although should be note that energetic modifications are most appreciable in relation of Riquelme de Gozy

Table 11 - S(IV): $E_k(3s^2 5s)$ variations and corresponding changes in LAN and FEC

Point	Factor E_k	$E_k(3s^2 5s)$	LAN	FEC	ΔLAN
S	1	33,60231	0,9610223	2,2264	-0,00049
S*	0,999	33,5687	-1,0006038	2,2331	0,01877

S**	0,995	33,4343	-1,0201456	2,2608	0,09655



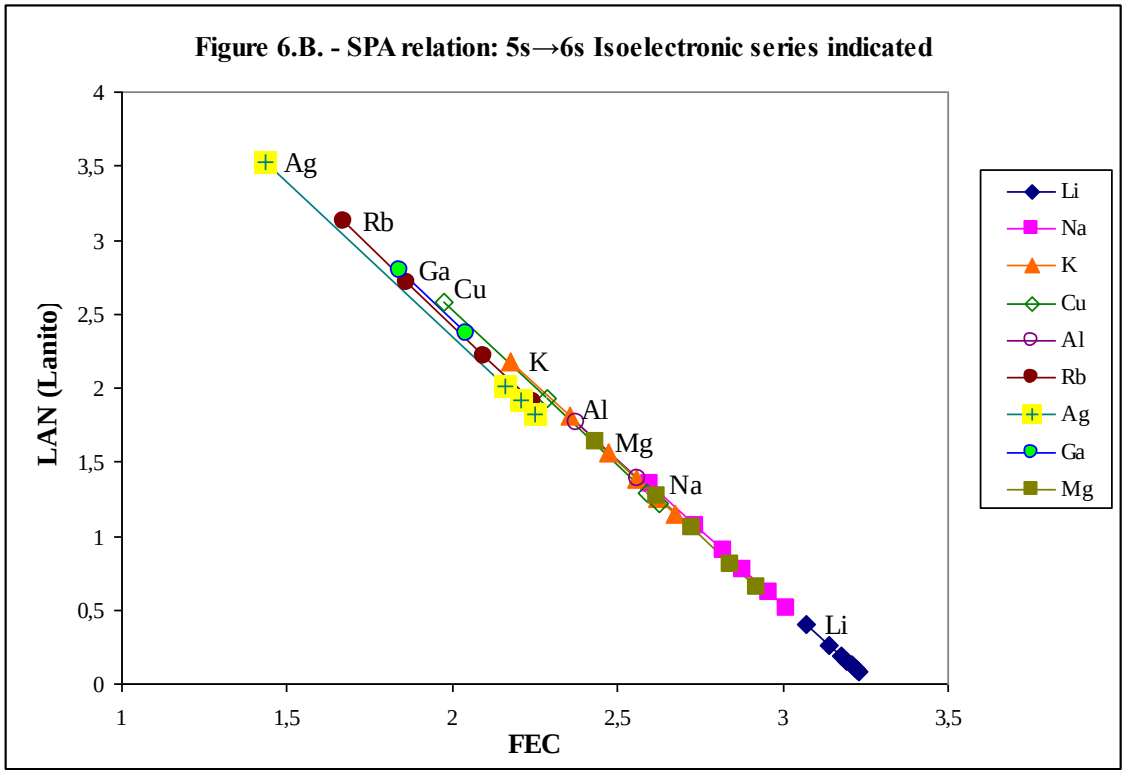
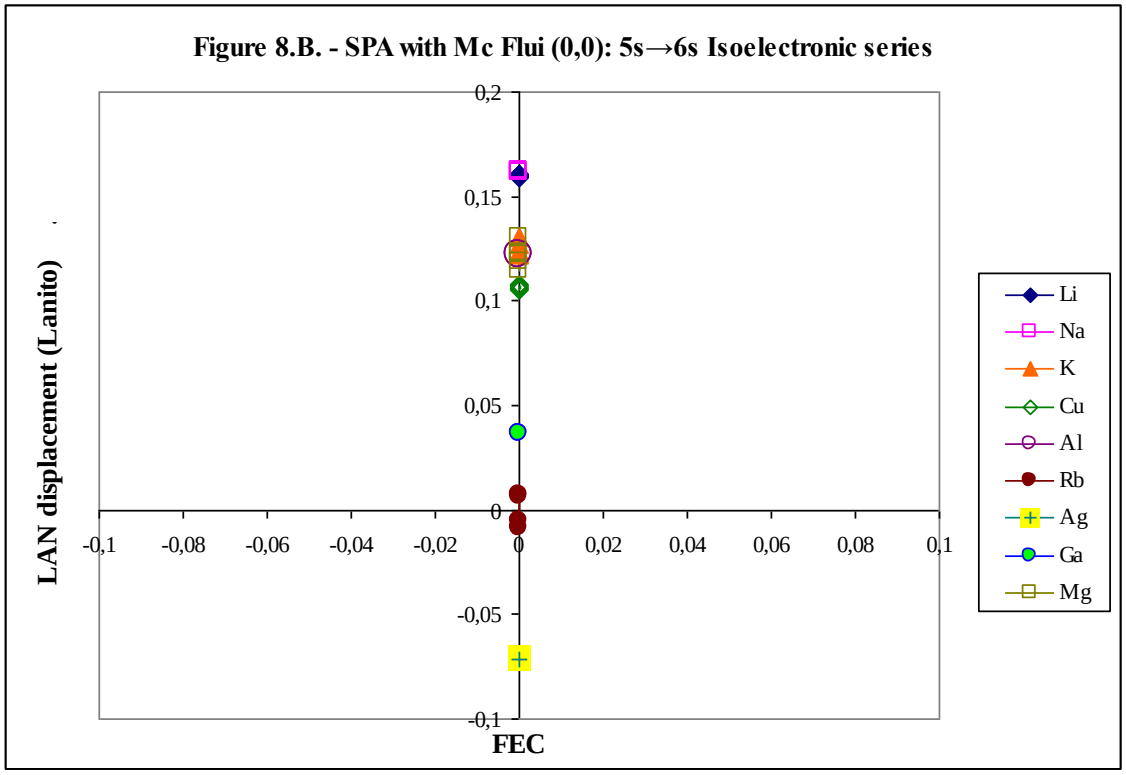


Figure 6.B. is 5s→6s (Term=^{2}S and J=1/2) as 4s→5s (Term=^{2}S and J=1/2) (Figure 6 in [6]) and also includes Mg isoelectronic series whose configuration is different: [Ne]3s^2→[Ne]3s4s→[Ne]3s4s with (Term=^{3}S and J=1) which is represented or (Term=^{1}S and J=0). Silpovgar III, parallel arrows of different isoelectronic series, is accomplished by all isoelectronic series including Mg series. Relative position of isoelectronic series is also maintained as is visible for example in innermost location of Rb series and especially Ag series as happens with Cu series in Figure 6.

Rb isoelectronic series is taken for Mc Flui transform of Silpovgar III in 5s→6s jump, as before K isoelectronic series has been selected for 4s→5s jump. **Figure 8.B.**, in analogy with Figure 8, is obtained by repeating same Mc Flui transform steps.

Main conducts notes in Figure 8 are repeated and applicable to new isoelectronic series in Figure 8.B.:

* Grouping points of each isoelectronic series which is reflection of their good linearity
* Li (2s→5s→6s) and Na (3s→5s→6s) isoelectronic series are located together.
* K (4s→5s→6s), Al (3p→5s→6s) and now has also been shown that Mg (3s^2→3s4s→3s5s) are situated in same strip.
* Other isoelectronic series in 4s, which is Cu (4s→5s→6s), continues to run with somewhat lower LAN displacement than series coordinated by K (4s→5s→6s).
* Situation seen with K and Cu series is also performed by Rb and Ag series.
* Although Ga series is not perfectly embedded in Rb series, other series with 4p^x→4p^{x-1}5s→4p^{x-1}6s such as 4p^4, 4p^5 or 4p^6 are perfectly located in Rb series (**Figure 9.B.**). In 4p series there are only two data Ga and Ge and in others there is not sufficient data. Configurations used are in **Table 12**.



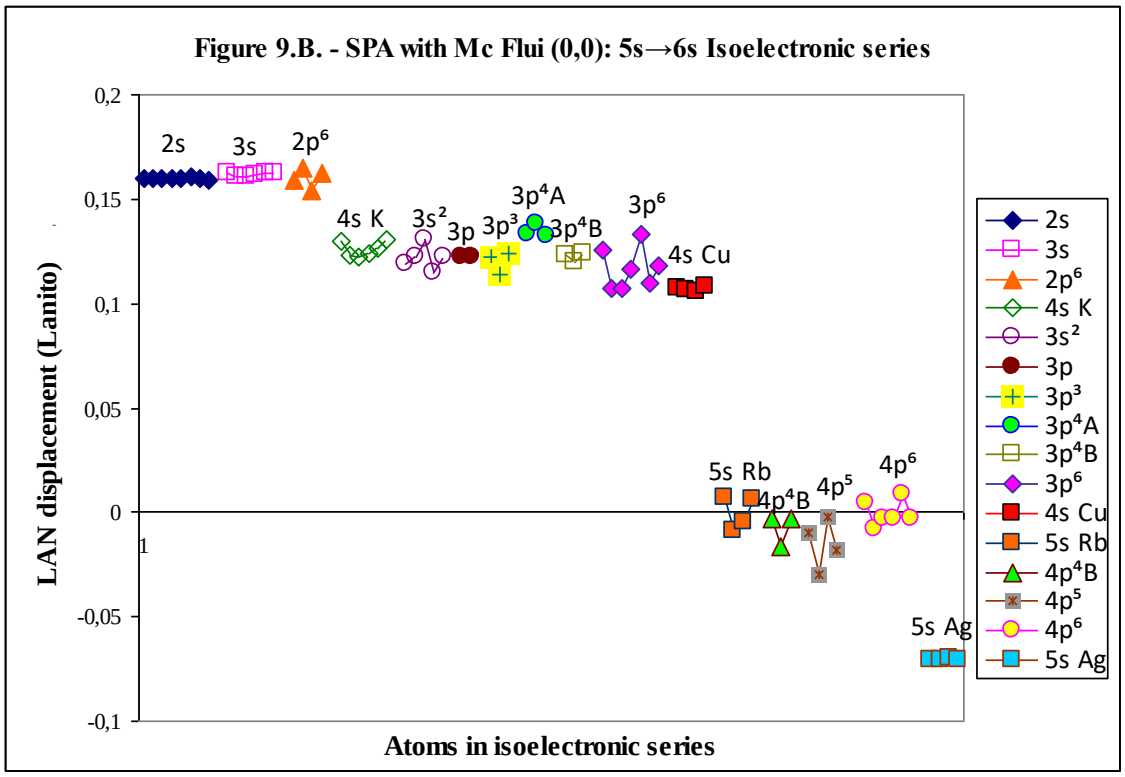


Table 12 - Isoelectronic Series Configuration selected in Figure 9.B.					
Series	Minimum	Start	Term	J	Final
ns (a)	ns	5s	^2S	1/2	6s
	nd (b)	5s	^2S	1/2	6s
np	np	5s	^2S	1/2	6s
$3p^3$	$3p^3$	$ns^2np^2(^3P)5s$	^4P	1/2	$ns^2np^2(^3P)6s$
np^4A	np^4	$ns^2np^3(^4S^0)5s$	$^3S^0$	1	$ns^2np^3(^4S^0)6s$
$3p^4B$	$3p^4$	$3s^23p^3(^4S^0)5s$	$^5S^0$	2	$3s^23p^3(^4S^0)6s$
$4p^5$	$4p^5$	$4s^24p^4(^3P)5s$	^4P	5/2	$4s^24p^4(^3P)6s$
np^6	np^6	np^55s	$^4P^0$	1	np^56s

(a) Several isoelectronic series are represented when n is used. In this case are: Li, Na, K, Cu, Rb and Cu. Ne, Ar and Kr in np^6 series.
(b) Transition metals.

4) Silpovgar I: SPA convergence (Indian tents under Silva dominion) Part two.

SPA linear regressions for ideal jumps converge in LAN value [5] and said convergence point varies monotonically with start n. On the one hand, converge in LAN value is corroborated with another jump and new second part, convergence point varies

monotonically with start n, is studied. $1s^2 2s \rightarrow 1s^2 ns$ (Term=^3S and J=1) is seen in [5] while $n_s s \rightarrow ns$ (Term=^2S and J=1/2) is now analyzed.

Figure 11 shows $n_s s \rightarrow ns$ (Term=^2S and J=1/2) jump for isoelectronic series of Li, Na and K. SPA linear regressions are extrapolated to Y-intercept to allow illustrating Silpovgar I. As indicated in [5], Y-intercept convergence is optimized and allows comparisons with SPA relations that have same jump, but different start non-excited n, if at least first jump is discarded and the same are selected (eg 2nd, 3rd, 4th and 5th jump).

Linear regressions converge, like wooden poles of indian tent, in LAN=1,5 for Li series, LAN=2,5 for Na series and LAN=3,5 for K series. Monotone variation is one Y-intercept LAN unit per unit increased in start n. **Table 13** contains isoelectronic series with their start n and Y-intercept or confluence LAN where monotonic variation indicated is corroborated. Y-intercept or confluence LAN can be seen in corresponding figures according to Table 13.

On the one hand K and Cu isoelectronic series and on the other Rb and Ag isoelectronic series have same Y-intercept or confluence LAN as expected after Silpovgar III, parallel arrows of different isoelectronic series, where both SPA linear regressions are practically superimposed (Figures 4, 4.B. 4.C. 5, 5.B. and 5.C.)

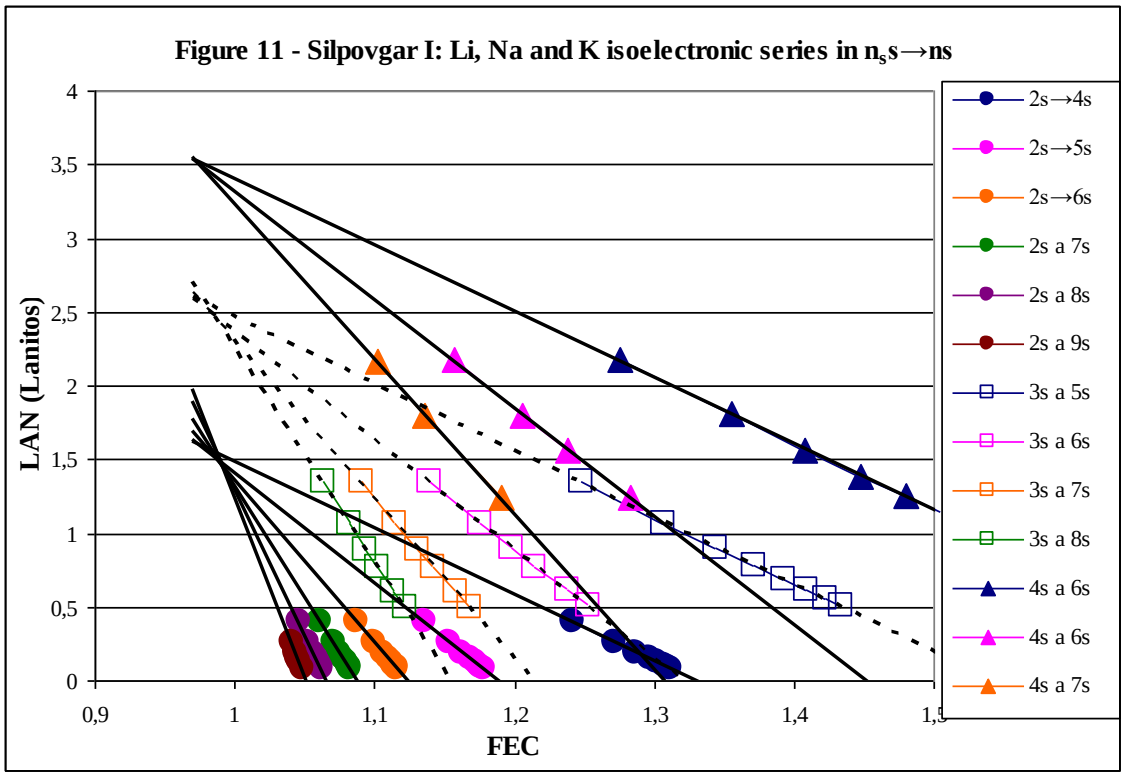


Table 13 - Silpovgar I: SPA convergence (Indian tents under Silva dominion) Part two. $n_s s \rightarrow ns$ (Term=^2S and J=1/2): monotonous LAN confluence variation			
Figure	Isoelectronic series	start n (n_s)	LAN confluence
11	Li	2	1,5
11	Na	3	2,5
11	K	4	3,5
11.B.	Rb	5	4,5
11.B.	Cs	6	5,5
11.C.	Cu	4	3,5
11.C.	Ag	5	4,5
Figure 11.B. and **Figure 11.C.** in **Annex**			

5) Other electronic jumps

As an introduction, corroborating what has been so far with $1s^2 \rightarrow 1sns$ (Term=^3S and J=1) and $n_s s \rightarrow ns$ (Term=^2S and J=1/2) as well as discovering new behaviours, other electronic jumps are studied.

A) $n_s s \rightarrow np$ (Term=$^2P^0$ and J=3/2)

A.1.) $n_s s \rightarrow np$ (Term=$^2P^0$ and J=3/2) with $n > n_s$

Electron jumps with requirement tested so far are in this first section: requirement is that excited state n is greater than initial or start n (n_s). There is no other possibility with previous two jumps, but now can be satisfied that $n=n_s$ for example $3s \rightarrow 3p$. Atoms with data for $n_s s \rightarrow np$ (Term=$^2P^0$ and J=3/2) and included are in **Table 14** and plotted in **Figure 12**. Figure 12 represents:

- Relation of Silva de Peral y Alameda (SPA relation): LAN arrow rain.
- Silpovgar I: SPA convergence (Indian tents under Silva dominion) Part one and two. LAN confluence can be approximated to:

$LAN_{CONFLUENCE}=1+1/3$ for $3s \rightarrow np$
$LAN_{CONFLUENCE}=2+1/3$ for $4s \rightarrow np$
$LAN_{CONFLUENCE}=3+1/3$ for $5s \rightarrow np$

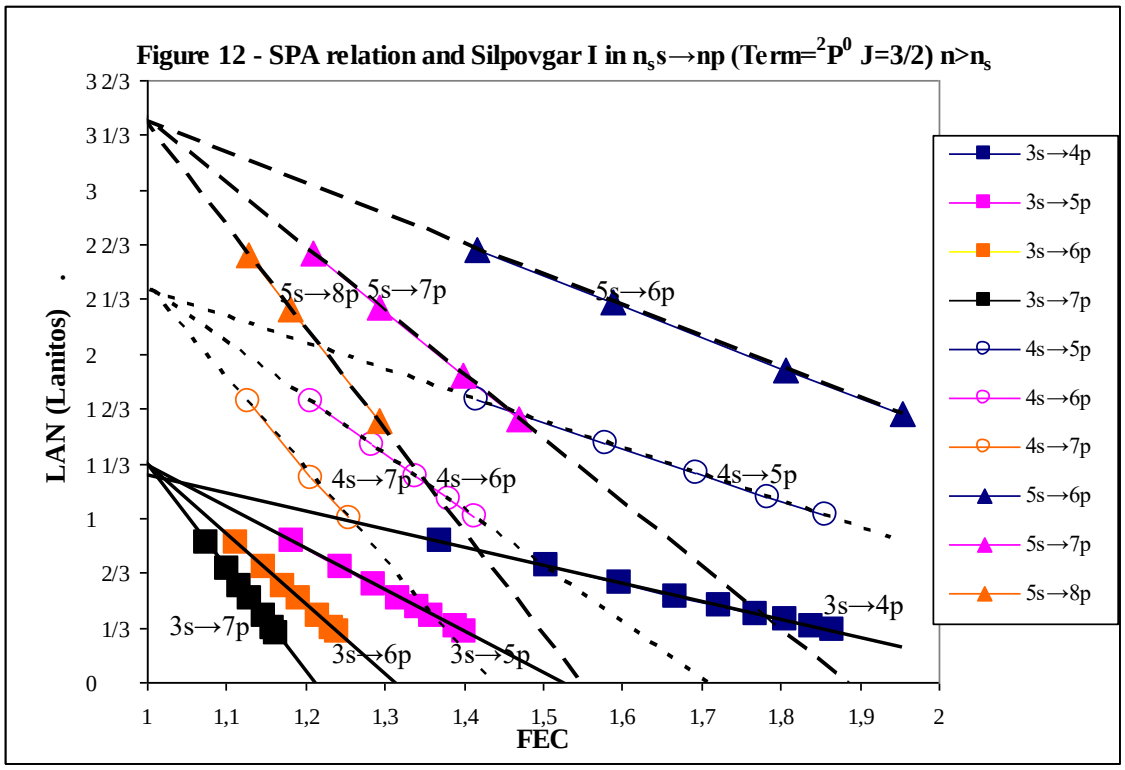


Table 14 - $n_s s \rightarrow np$ (Term=$^2P^0$ and J=3/2) with $n>n_s$. Atoms represented in Figure 12.

	Jump	Na I	Mg II	Al III	Si IV	P V	S VI	Cl VII	ArVIII	K IX
3s→np	3s→4p	X	X	X	X	X	X	X	X	X
	3s→5p	X	X	X	X	X	X		X	X
	3s→6p	X	X	X	X		X		X	X
	3s→7p	X	X	X	X		X		X	X
4s→np	Jump	K I	Ca II	Sc III	Ti IV	V V				
	4s→5p	X	X	X	X	X				
	4s→6p	X	X	X	X	X				
	4s→7p	X		X		X				
5s→np	Jump	Rb I	Sr II	Zr IV	Mo VI					
	5s→6p	X	X	X	X					
	5s→7p	X	X	X	X					
	5s→8p	X	X		X					

P65 Fundamental Relation of Silva de Peral y Alameda type II

Fundamental Relation of Silva de Peral y Alameda type II is $LAN^{-1/2}$ interatomic linearity for $n=n_s$ (destiny n = start n) as function of FEC (Fundamental Energetic Correlation): quotient between ionization energy of excited electron (IE) in absolute value and jump energy with reference data (E_k) (1). IE is in absolute value for FEC quotient to be positive. P65 Fundamental Relation of Silva de Peral y Alameda type II is applicable to $n_ss \rightarrow np$ (Term=$^2P^0$ and J=3/2) with $n=n_s$

SPA type II origin point must be compliment as justified in next point.

A.2.) $n_ss \rightarrow np$ (Term=$^2P^0$ and J=3/2) with $n=n_s$

This jump fulfils P65 Fundamental Relation of Silva de Peral y Alameda type II as just noted. First jump atoms with $n>n_s$ in Table 14 are those shown in $n_ss \rightarrow np$ (Term=$^2P^0$ and J=3/2) with $n=n_s$ (**Figure 13**). Only Zr IV being slightly deviated is not in linear regression calculation. Additionally, $n_s=6$ with Cs I and Ba II are represented since, although linearity of SPA relation can not be proved to be only two points, forms part of the so-called SPA type II origin point. SPA type II origin point is regression lines confluence of SPA with $n=n_s$ and is marked in Figure 13. Three linear regressions show very good linearity: 0,9994 0,9999 and 0,9998 for Na, K and Rb isoelectronic series respectively.

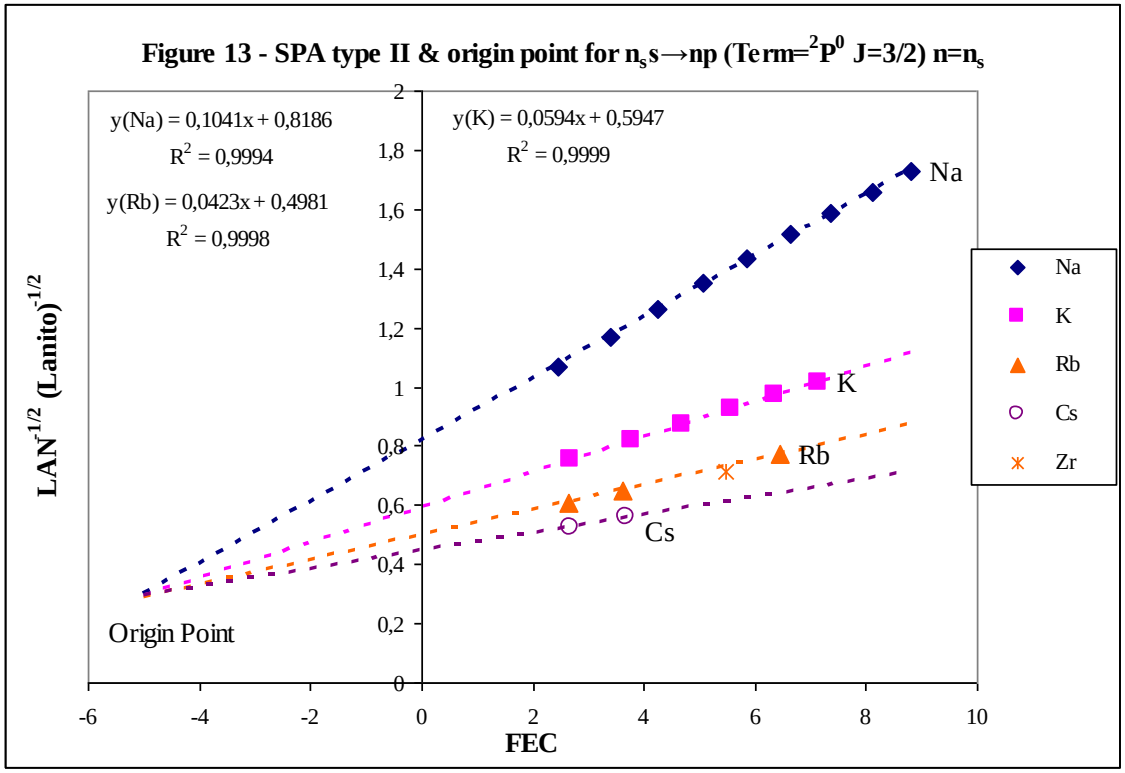


Figure 13 - SPA type II & origin point for $n_ss \rightarrow np$ (Term=$^2P^0$ J=3/2) $n=n_s$

P56 Silpovgar Theory, introduced in [5] with its first two relations, is continued with the third (figures from 4 to 10) and now with the fourth:

Silpovgar I: SPA convergence (Indian tents under Silva dominion)
Silpovgar II: Leap to jump globality. Relation between SPA equation and n
Silpovgar III: parallel arrows of different isoelectronic series.

Silpovgar IV: confluence arrows of different isoelectronic series with FEC adapted

No-isoelectronic series in n_s(p or s)→ns (Term=^{2}S and J=1/2) specific jump are directed towards confluence point and can be understood as inverse situation with respect to view in Silpovgar III for n_ss→ns (Term=^{2}S and J=1/2). FEC adapted must be applied to each case.

B) n_s(p or s)→ns (Term=^{2}S and J=1/2) with FEC adapted.
In general, this point is applied to any $n_s(p^y$ or $s^x)\rightarrow n_s(p^{y-1}$ or $s^{x-1})ns$

n_s(p or s)→ns (Term=^{2}S and J=1/2) with n_s=[3,4] satisfy SPA relation, Silpovgar I with confluence in LAN(n_s=3)≈3+3/4 and LAN(n_s=4)≈4+1/2 and Silpovgar IV. First jump should be specially avoided to obtain Silpovgar I.

Silpovgar IV application to n_s(p or s)→ns

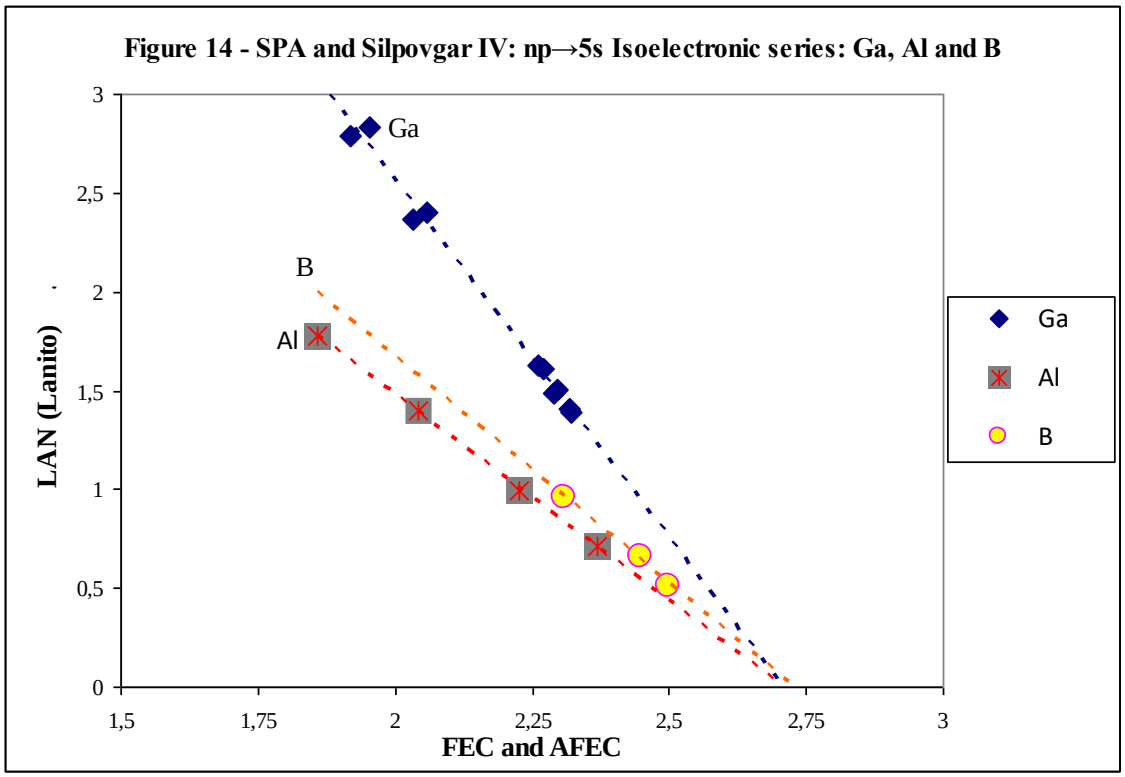
B, Al and Ga isoelectronic series are those used in first application example and are jumps from np to ns. Ga isoelectronic series uses (1) because it only goes from n=4 to n=5 (4p→5s). [Zn]4p with Term=^{2}P^0 and J=1/2 is minimum energy, while Term=^{2}P^0 and J=3/2 requires little energy that should be considered in IE and therefore affects LAN (2) and FEC (1) calculation.

Ga I: 4p→5s
Term=^{2}P^0 and J=1/2 LAN=2,830083665 FEC=1,9520170
Term=^{2}P^0 and J=3/2 LAN=2,791072594 FEC=1,9186875

Atoms in each isoelectronic series with data [7]:

Ga series	Ga I, Ge II, Kr VI, Rb VII and SrVIII
Al series	Al I, Si II, S IV and K VII
B series	B I, C II and N III

Three isoelectronic series are represented in **Figure 14** with linear regressions pointing to same point. Ga isoelectronic series with 4p start state Term=^{2}P^0 J=1/2 and Term=^{2}P^0 J=3/2 have been represented together. Term=^{2}P^0 J=1/2 has only been represented in Al and B series because Term=^{2}P^0 J=3/2 is very similar. Linear regressions are drawn with discontinuous marks.



Removal of some atoms that cause discontinuities in SPA may be justified by their anomalous Relation of Riquelme de Gozy. This fact is applicable to O IV and exemplifies connection between two relations: Riquelme de Gozy (RG) and Silva de Peral y Alameda (SPA). Also, small energetic modification can allow both relations to be satisfied. This predictive field should also consider IE calculation and curvature explanation of Riquelme de Gozy. For all this, is postponed because is rather expensive field and not subject to current article study.

Adapted FEC calculation requires P57 inclusion:

P57 FEC adapted or AFEC

Jumps may need intermediate excited state which is included in FEC conforming adaptation FEC. In contrast, LAN is not calculated with this modification and is important difference with respect to transition metals (from nd→(n+1)s) where energetic change is in both LAN and FEC.

This intermediate excited state for $n_sp \rightarrow ns$ and, in general, for all jump $n_sp^y \rightarrow n_sp^{(y-1)}ns$ is given by (14):

$$(14)\ n_sp^y \rightarrow n_sp^{(y-1)}(n-1)s \rightarrow n_sp^{(y-1)}ns$$

Initial state → intermediate excited state → excited state

Ga isoelectronic series uses (1) because it only goes from n=4 to n=5 (4p→5s) and does not have intermediate excited state since 4s is full:

$$4s^2 4p \rightarrow \ ¿4s^2(5\text{-}1)s = \ 4s^2 4s? \rightarrow 4s^2 5s$$

In contrast, B and Al isoelectronic series run through that intermediate excited state. For example, in B isoelectronic series:

$$[He]2s^2 2p \rightarrow [He]2s^2 4s \rightarrow [He]2s^2 5s$$

As indicated in P57 FEC adapted or AFEC, intermediate excited state which is included in FEC conforming adaptation FEC (15). (15) is transformed into (1) when intermediate excited state does not exist.

$$(15)\text{AFEC}(n_s p^y \rightarrow n_s p^{y-1} ns) = \frac{-\left(IE + E_{k\ of\ (n\ -\ 1)s}\right)}{E_{k\ of\ ns} - E_{k\ of\ (n\ -\ 1)s}}$$

Situation is reversed when initial state is s^x (s or s^2) and intermediate state is (n-1)p (16) with FEC adapted as (17):

$$(16)\ n_s s^x \rightarrow n_s x^{(x\text{-}1)}(n\text{-}1)p \rightarrow n_s s^{(x\text{-}1)} ns$$

Initial state → intermediate excited state → excited state

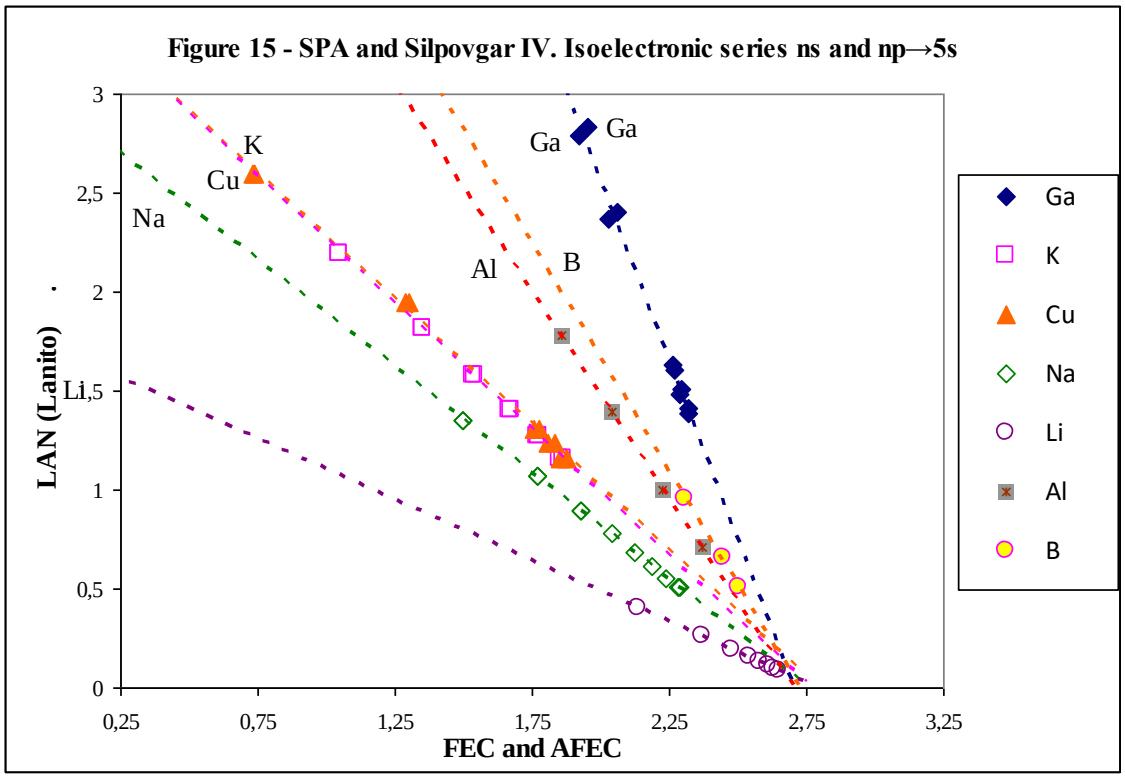
$$(17)\text{AFEC}(n_s s^x \rightarrow n_s s^{x-1} ns) = \frac{-\left(IE + E_{k\ of\ (n\ -\ 1)p}\right)}{E_{k\ of\ ns} - E_{k\ of\ (n\ -\ 1)s}}$$

For example, in Be isoelectronic series:

$$[He]2s^2 \rightarrow [He]2s4p \rightarrow [He]2s^2 5s$$

Isoelectronic series with ns initial state are added to those of Figure 14 to constitute **Figure 15** where Silpovgar IV, confluence arrows of different isoelectronic series with FEC adapted, is confirmed Atoms in each isoelectronic series are first 8 for Li and Na series, while all those that are in reference [7] are for K and Cu series:

Li series	[Li I, Ne VIII] (From Li I to Ne VIII both included)
Na series	[Na I, Ar VIII]
K series	[K I, Cr VI] (previous step from 3d→4s in transition metals must be considered in both LAN and FEC because affects IE)
Cu series	Cu I, Ga III, Kr VIII, Rb IX and Sr X



Latest corroboration of compliance with Silpovgar IV application to n_s(p or s)→ns is represented by **Figure 16** that combines previous jumps of Figure 15 together with:

* $n_s s^2$ isoelectronic series with following steps:

$$n_s s^2 \rightarrow n_s s4p \text{ (Term}={}^3P^0 \text{ J=0, 1 and 2)} \rightarrow n_s s5s \text{ (Term}={}^3S \text{ J=1)}$$

He series	[He I, C V]
Be series	Be I and B II
Mg series	Mg I, Al II, Si III, S V and Ar VII
Zn series	Ga II, Kr VII, Rb VIII and Sr IX

* Some isoelectronic series examples have sufficient and accurate data in [7] to correctly exemplify that, in addition to np→ns (Figure 14 and 15), other np^y (with y>1) also fulfil Silpovgar IV and consequently their corresponding mechanism (14). These isoelectronic series are in **Table 15.** These examples also converge at the same point and are additionally located on respective np→ns lines. This convergence point called Piepflui can be approximated to FEC=2.75

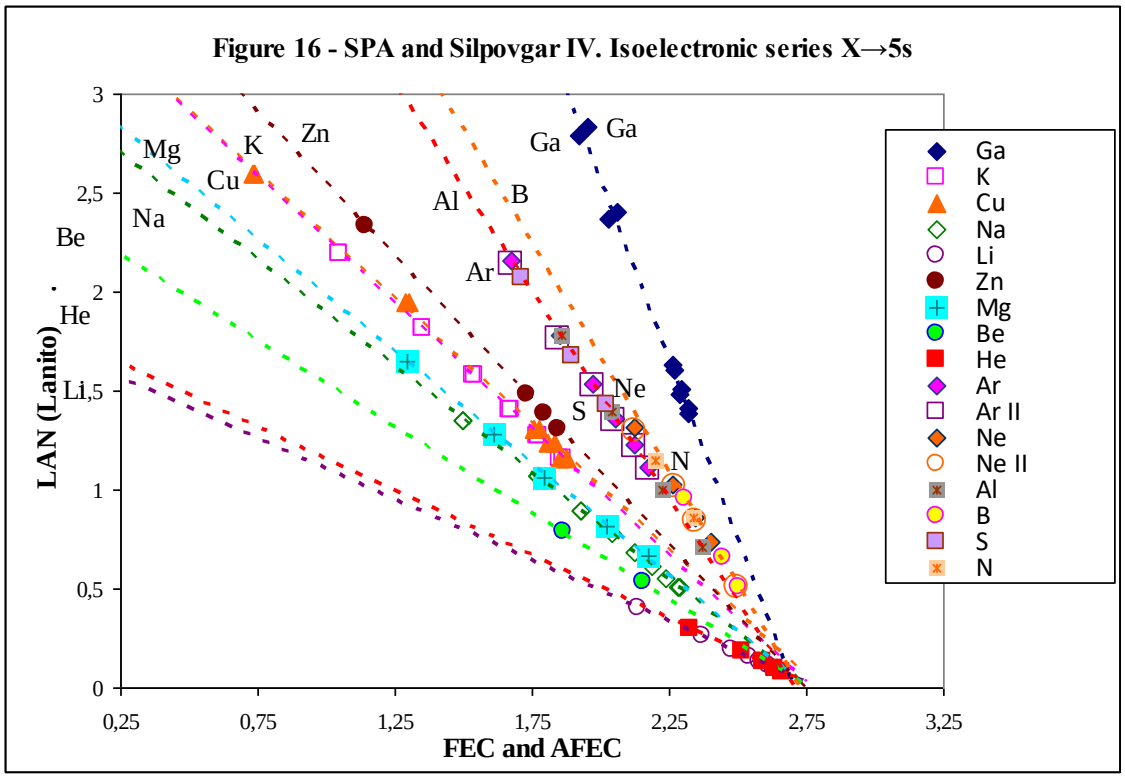


Table 15 - Isoelectronic series examples that meet Silpovgar IV in $n_sp^y \rightarrow n_sp^{(y-1)}(n-1)s \rightarrow n_sp^{(y-1)}ns$ with AFEC (15)				
Isoelectronic series	Legend	Initial state	Intermediate and excited state	Atoms
Ar	Ar	$3p^6$	$3p^5(^2P^0\ 3/2)ns\ ^2[3/2]\ 2$	[Ar(I),V(VI)]
	Ar II		$3p^5(^2P^0\ 3/2)ns\ ^2[3/2]\ 1$	
Ne	Ne	$2p^6$	$2p^5(^2P^0\ 3/2)ns\ ^2[3/2]\ 2$	[Ne(I),Al(IV)]
	Ne II		$2p^5(^2P^0\ 3/2)ns\ ^2[3/2]\ 1$	[Ne(I),Mg(III)] and S(VI)
S	S	$3p^4$	$3p^3(^4S^0)ns\ ^5S^0\ J=2$	S(I), Cl(II) and Ar(III)
N	N	$2p^3$	$2p^2(^3P_0)ns\ 4P\ 1/2$	N(I) and O(II)

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[2] Javier Silvestre. LAN plains for Tete Vic Equation. Sent to: http://vixra.org/author/javier_silvestre

[3] Javier Silvestre. Relation of Riquelme de Gozy: LAN lineality with energy of excited states. Sent to: http://vixra.org/author/javier_silvestre

[4] Javier Silvestre. Relation of Flui Piep de Garberí: LAN^{-1} and Ionization Energy. Sent to: http://vixra.org/author/javier_silvestre

[5] Javier Silvestre. Relation of Silva de Peral y Alameda: LAN interatomicity with energetic relation. Sent to: http://vixra.org/author/javier_silvestre
[6] Javier Silvestre. Relation of Silva de Peral & Alameda II: jump from n_ss to ns. Sent to: http://vixra.org/author/javier_silvestre
[7] Kramida, A., Ralchenko, Yu., Reader, J., and NIST ASD team (2014). NIST Atomic Spectra Database (ver. 5.2.) [Online]. Available: http://physics.nist.gov/asd [2016, May 30]. National Institute of Standards and Technology, Gaithersburg, MD
[8] Kramida, A., Ralchenko, Yu., Reader, J., and NIST ASD Team (2015). *NIST Atomic Spectra Database* (ver. 5.3), [Online]. Available: http://physics.nist.gov/asd [2016, May 18]. National Institute of Standards and Technology, Gaithersburg, MD.

Abbreviations Table
Following Table indicates abbreviations used in this theory and its use in article in question is marked with X. 14 is [5] and 15 is [6]. 16 is present article.

Abbreviation	**14**	**15**	**16**	**Meaning**
AC	X			Actual Change
AFEC			X	FEC adapted
BES	X			Born Electronic System
E_{dR}	X	X		Reference destiny energy
E_k	X	X	X	Reference Jump energy
$E_{k\text{-}SPA}$	X			E_k from LAN-SPA equality
E_o	X	X		1s OES Ionization energy
EC	X			Energetic correlation in SPA
FEC	X	X	X	Fundamental Energetic Correlation
FPG	X			Relation of Flui Piep de Garberí
IE	X	X	X	Ionization energy
LAN	X	X	X	Serelles Secondary Lines Factor
LAN_R	X	X		LAN with reference data
n	X	X	X	Principal quantum number
$n_{initial}$ or n_s	X	X	X	n of non-excited electron
OES	X			Origin Electronic System
RC	X			Relative Change
RG	X	X		Relation of Riquelme de Gozy
SPA	X	X	X	Relation of Silva de Peral y Alameda
Z	X			Atomic Number
z_o	X	X		1s Origin charge according to P46
z_s	X	X		Start charge according to P46

ANNEX

Figure 11.B. - Silpovgar I: Rb and Cs isoelectronic series in $n_s s \rightarrow ns$

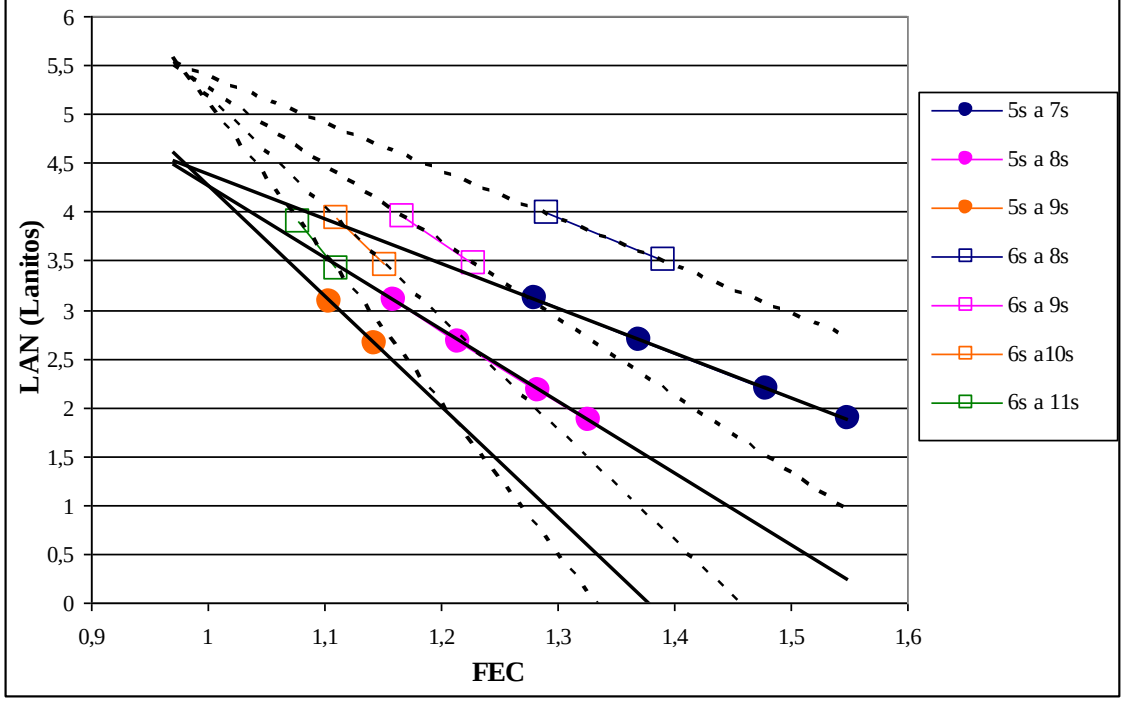
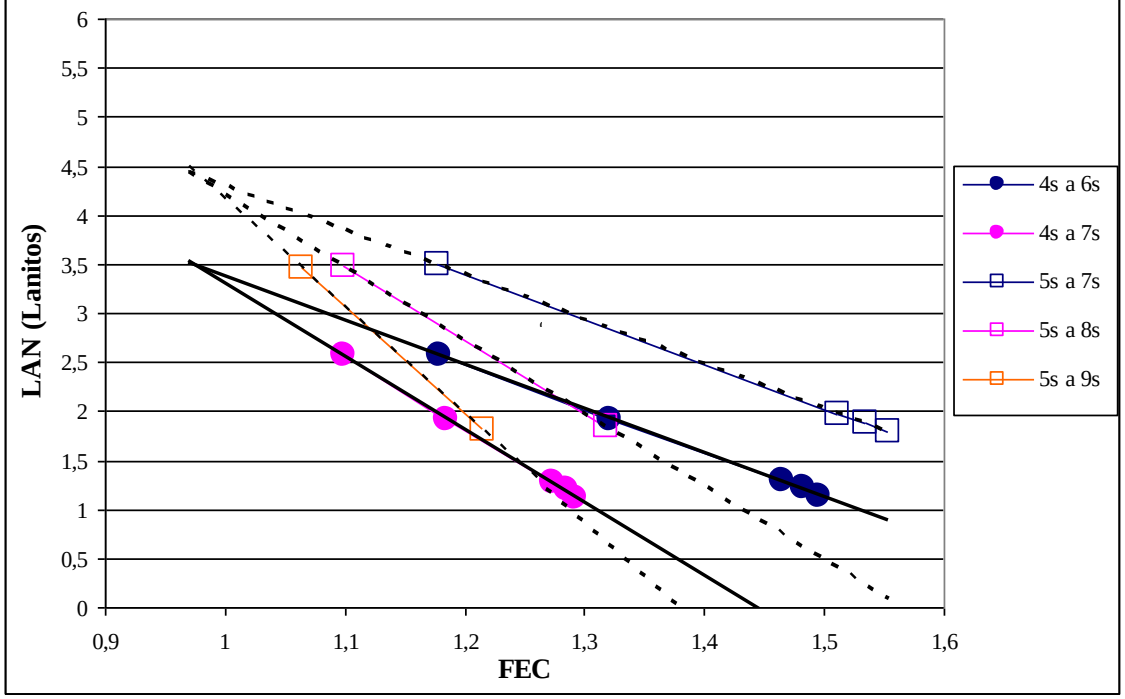


Figure 11.C. - Silpovgar I: Cu and Ag isoelectronic series in $n_s s \rightarrow ns$



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	03	Relations between electronic extremes: Rotation time as probability and Feliz I.
	04	Feliz II the prudent: Probability radial closure with high order variable C_F
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24 hours of new day		