ARTICLE 03
RELATIONS BETWEEN ELECTRONIC EXTREMES:
Rotation time as probability and First Feliz Solution

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ABSTRACT

To the absence of repulsion inter electronic by charge saturation (P04) [1], relation between electrons is added in this article. This relationship conditions ionization energies (birth energies or E_o). After several ideas, relation developed is based on coupling between electrons probability.

Electron Probability is introduced based on electron orbital turn time. Firstly, electron probability is defined according to division and radial distance. Variable Compaction Factor or First Feliz Solution is included to correct rising probability with the distance. Finally, electron Probability with Variable Compaction Factor is compared to current orbital representation.

KEYWORDS

Electron, Atomic model, Victoria Equation, Electronic Extreme (EE), Probability Coupling, First Feliz Solution, Variable Compaction Factor, PEP, MON.

INTRODUCTION

This is third article of 24 dedicated to atomic model based on Victoria equation (Articles index is at end). Electron separated into two EE (Electronic extremes) whose sum of energies is always equal to birth energy (E_o) is introduced in [1]. Victoria Equation provides energies (E_i) and radial distances (r_i) for each birth wavelength division. Suffix indicates electronic extreme considered (A or B) and i suffix is used to both electronic extremes (EE_i). All abbreviations are compiled, in conjunction with those included in [1] and [2] and some futures of this block dedicated to electronic extreme, at article end.

Next step has been to provide three dimensions to EE. For this purpose, r_i has been added Orbital circumference (c_i) and Circular orbital height (H_i). EE have two movements [2]:

a) Circular orbital movement that gives orbital angular momentum.
b) Alternate rotation over themselves that allows them to go up and down circular orbits. This movement gives spin angular momentum.

P23 Internal Electron conditions

Innermost shell electron (ns) influences outer electrons through relations between electronic extremes. That is, not only is there no repulsion between electrons when atom

is in charge saturation (P04) [1], but also that internal electron plays a decisive role in incoming electrons.

Birth by Probability Coupling

After other discarded options, Probability Coupling is relations between EE developed. Probability Coupling is NIN concept continuation initiated in [1]. Given the innermost shell electron (ns) with its associated probability curve forming what will be defined as "Origin System", rest of incoming electrons in the same period are born by probability coupling with internal electron. For example, in n=2, Origin System is 2s. In Neon, $2s^2$ and from 2p to $2p^6$ are born from 2s (Ne VIII) by Probability Coupling. Therefore, when Neon is Ne I ($2s^2 2p^6$ configuration in external shell), six $2p^6$ electrons are also born from 2s Origin System.

In addition, Probability Coupling that is more internal will be studied. In the same case above, both 2s and $2s^2$ have one internal lobe in n=1 whose Probability Coupling will also considered.

Before entering into Probability Coupling, is developed Probability meaning. Two EE with constant Compaction Factor presents an open H_i vs. c_i distribution. This distribution implies that extern EE or EE_A loses energy when leaves atom nucleus and, with this, increases λ_A and c_A. This fact does not coincide with experimental one. To correct this, Probability concept with variable Compaction Factor (C_F) is introduced in next two points.

P24 Probability concept as Orbital Turn Time

Probability is defined as ratio between c_i and v_i (EE velocity) (1).

$$(1)\ \text{EE Probabilit}\ y = P_i = \frac{c_i}{v_i}$$

Considering relation between c_i, λ_i and C_F [2] (2):

$$(2)\ c_i = \frac{\lambda_i}{2\pi\ C_F}$$

λ_i [1] including EE velocity (v_i) is given by (3):

$$(3)\ \lambda_i = \frac{h_i}{m_i v_i} = \frac{\frac{h}{2}}{\frac{m_e}{2} v_i} = \frac{h}{m_e v_i}$$

c_i is obtained in function of v_i (4) with (2) and (3) and where $\hbar = \dfrac{h}{2\pi}$ has also been replaced:

$$(4)\ c_i = \frac{\hbar}{C_F m_e v_i}$$

v_i is achieved by EE Kinetic Energy (Ek_i) Expression (5):

$$(5)\ v_i = \sqrt{\frac{2Ek_i}{m_i}}$$

As EE mass is half electron mass (P09 [1]) (7) and Ek_i is equal to EE Energy (E_i) obtained by Victoria Equation, but with sign changed (6) [1]:

$$(6)\ Ek_i = -E_i$$

$$(7)\ m_i = \frac{m_e}{2}$$

v_i to replace in (4) is provided by (8):

$$(8)\ v_i = \sqrt{\frac{-4E_i}{m_e}} = 2\sqrt{\frac{-E_i}{m_e}}$$

Leaving c_i depending on E_i (9):

$$(9)\ c_i = \frac{\hbar}{2C_F m_e^{1/2}}\frac{1}{(-E_i)^{1/2}}$$

For its part, Probability (P_i) is given by (10) where in (1) has been substituted c_i by (4):

$$(10)\ P_i = \frac{\hbar}{C_F m_e v_i^2}$$

(10) goes to (11) when replacing v_i with (8):

$$(11)\ P_i = -\frac{\hbar}{4}\frac{1}{C_F E_i}$$

According to (11), P_i is not function of m_i and is equal to $-\hbar/4$ constant and inversely proportional to C_F and E_i.

a) E_i (EE energy): E_i absolute value decrease causes minor v_i implying EE takes longer to make orbital turn time. In addition, also causes λ_i to increase and consequently higher c_i (2) also inducing EE takes longer to make orbital turn time.

$$\downarrow - E_i \rightarrow \downarrow v_i \rightarrow \uparrow P_i$$
$$\downarrow - E_i \rightarrow \uparrow \lambda_i \rightarrow \uparrow c_i \rightarrow \uparrow P_i$$

b) C_F (Compaction Factor): C_F decrease implies that λ_i is less compacted and c_i increase occurs (2).

$$\downarrow C_F \rightarrow \uparrow\lambda_i \rightarrow \uparrow c_i \rightarrow \uparrow P_i$$

There is no effect on probability curve morphology if C_F is constant. **Figure 1** shows Pi line as radial distance (r_i) function. r_i is divided by Bohr radius (a_o). Other lines are obtained when constant C_F is changed.

Figure 1. P_i vs r_i/a_o with constant C_F for 1s Hydrogen
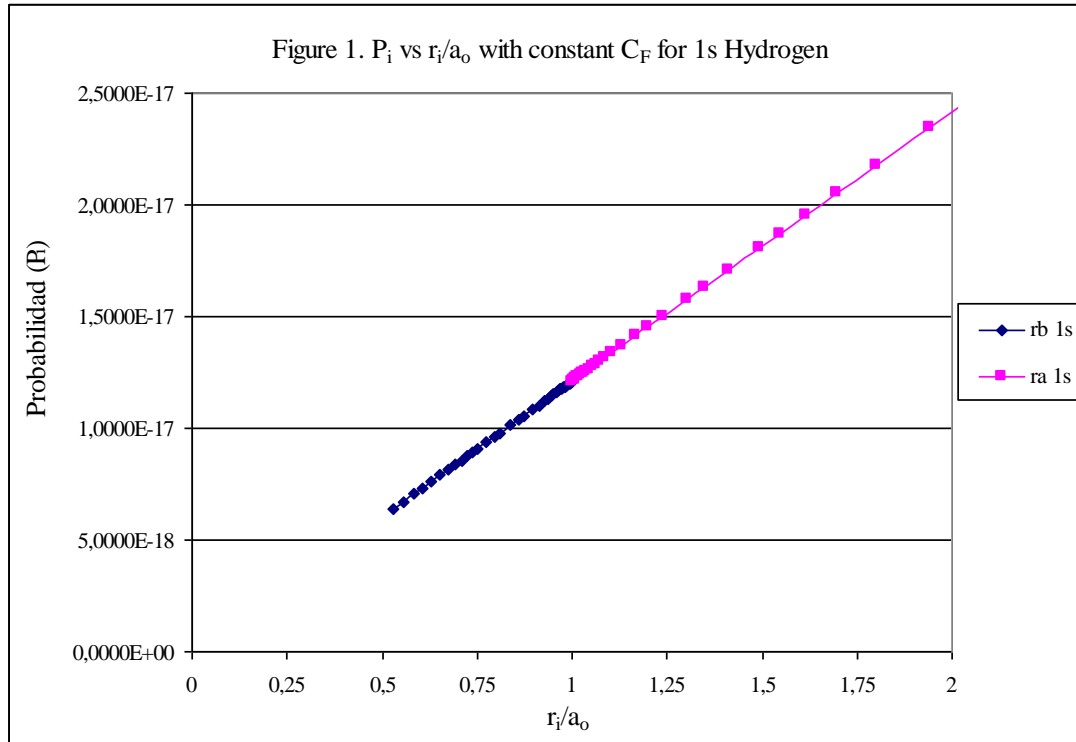
Subsequently, P_i and c_i variations are studied. To do this, E_i is replaced by (12) [1]:

$$(12)\ E_i = -\frac{fz}{2r_i} = -\frac{F}{2r_i}$$

Where f is constant, z is effective nuclear charge and r_i is distance between nucleus and EE in a given division. Coulomb constant (K) and q charge are included in constant f. Consequently, F is given by (13) [1]:`

$$(13)\ F = \frac{Kq^2}{2}z = fz = 1{,}153538564 \bullet 10^{-28}z$$

Starting from (9) and (11), (14) and (15) are obtained by using (12). In this way, c_i (14) and P_i (15) are expressed as r_i function.

$$(14)\ c_i = \frac{\hbar}{C_F\sqrt{2m_e f}}\frac{r_i^{1/2}}{z^{1/2}}$$

$$(15)\ P_i = \frac{\hbar}{2C_F f}\frac{r_i}{z}$$

There are two related geometric magnitudes: c_i and r_i. c_i is $r_i^{1/2}$ function (14) and this proportionality relation is fulfilled if C_F is r_i independent (16) as occurs when C_F is constant (Figure 2 from [2]). As can be seen in the following section, this condition does not happen when C_F is variable and consequently, (16) is not satisfied.

$$(16)\; c_i \,\alpha\, r_i^{1/2} \qquad \text{if } C_F \text{ is } r_i \text{ independent}$$

Finally, (14) and (15) are developed considering r_i as division function. For this, r_A (17) and r_B (20) Victoria equation are taken from [1]. EE_A radial distance (r_A) is used to know orbital circumference (c_A) (18) and EE_A probability (P_A) (19). r_B (20) is related to r_A considering birth wavelength (λ) and division (d) [1]. Expressions for c_B and P_B are as (18) and (19) respectively using r_B instead of r_A.

$$(17)\; r_A = \frac{-F - \dfrac{h\sqrt{-E_o}}{dm_e^{1/2}} - \sqrt{F^2 + \dfrac{h^2(-E_o)}{d^2 m_e}}}{2E_o}$$

$$(18)\; c_A = \frac{\hbar}{C_F\sqrt{2m_e fz}} \sqrt{\frac{-F - \dfrac{h\sqrt{-E_o}}{dm_e^{1/2}} - \sqrt{F^2 + \dfrac{h^2(-E_o)}{d^2 m_e}}}{2E_o}}$$

$$(19)\; P_A = \frac{\hbar}{2C_F fz} \frac{-F - \dfrac{h\sqrt{-E_o}}{dm_e^{1/2}} - \sqrt{F^2 + \dfrac{h^2(-E_o)}{d^2 m_e}}}{2E_o}$$

$$(20)\; r_B = r_A - \frac{\lambda}{d} = \frac{-F - \dfrac{h\sqrt{-E_o}}{dm_e^{1/2}} - \sqrt{F^2 + \dfrac{h^2(-E_o)}{d^2 m_e}}}{2E_o} - \frac{\lambda}{d}$$

P25 First Feliz Solution. Feliz I: The Conqueror. Variable C_F - Introduction: First-order approximation.

Figure 1 implies that extern electronic extreme (EE_A) has growing and infinite Probability as it moves away from nucleus. This fact would provoke that EE_A would be far away infinitely from nucleus with smaller energies and velocities and therefore greater orbital turn time (P_A).

One definite volume must have a closed wall to conquer one space. In this introduction, Variable Compaction Factor (C_F) is determined by division (d) and two factors: PEP (P) and MON (M) (21)

$$(21)\; C_{F-FirstOrder} = 2 + \frac{P * M}{d^P}$$

Where d is Birth wavelength division or simply division and is the one that provides C_F variability since PEP and MON are constants for a given lobe. (21) can be compacted by including number 2 in fraction (22):

$$(22)\ C_{F-FirstOrder} = \frac{2d^P + P * M}{d^P}$$

First-order approximation is sufficient to reach parallelism with electron probability, maximum probability and lobe geometry.

P26 MON Factor (Modified Orbital Number)

MON is factor whose value is held constant for an orbital type in a given n quantum number.

MON value and numerical rules are developed later.

P27 PEP Factor (Principal Electronic Part)

PEP is another factor and is equal to 2. 1s is exception because PEP=1.

1s has been studied with PEP=2 and the rest with PEP=3 (even with higher PEP) and this PEP increase has been offset by MON increase. Objective is that maximum probability and Pi curves morphology are in agreement with references and that MON complies with some numerical rules. Subsequent studies suggest that the best choice is PEP=1 (1s) and PEP=2 (rest of lobes).

Probability with First Feliz Solution

P_i with First-order approximation for C_F is in (23) and (24). E_i and d function (23) is obtained from (11) and r_i and d function comes from (15). Probability constant (K_P) (25) is equal to term $\dfrac{\hbar}{2f}$ that is constant for all treated electrons. Effective nuclear charge (z) is left out of K_P because z depends on atom or ion and electron lobe considered. Taking into account (25), (24) can be rewritten in (26).

$$(23)\ P_i = -\frac{\hbar}{4\left(2 + \dfrac{P * M}{d^P}\right)} \frac{1}{E_i}$$

$$(24)\ P_i = \frac{\hbar}{2f\left(2 + \dfrac{P * M}{d^P}\right)} \frac{r_i}{z}$$

$$(25)\ Kp = \frac{\hbar}{2f}$$

$$(26)\ P_i = \frac{K_P}{\left(2 + \dfrac{P * M}{d^P}\right)} \frac{r_i}{z}$$

Hydrogen Probability with First Feliz Solution

Figure 2 represents 1s Hydrogen electron with first-order variable C_F. PEP=1 and MON=100 have been selected. EE radius (r_i) divided by Bohr radius (a_o) is in X axis. EE Probability (P_i) is in X axis. For Figure 2, Variable C_F has been abbreviated by CFv to differentiate it from Constant C_F that is abbreviated by CFc. This terminology is only used in Figure 2 and 3 to distinguish both Compaction Factors.

Figure 2 - Pi vs ri/ao for 1s H with First-Order CF (PEP=1 MON=100)
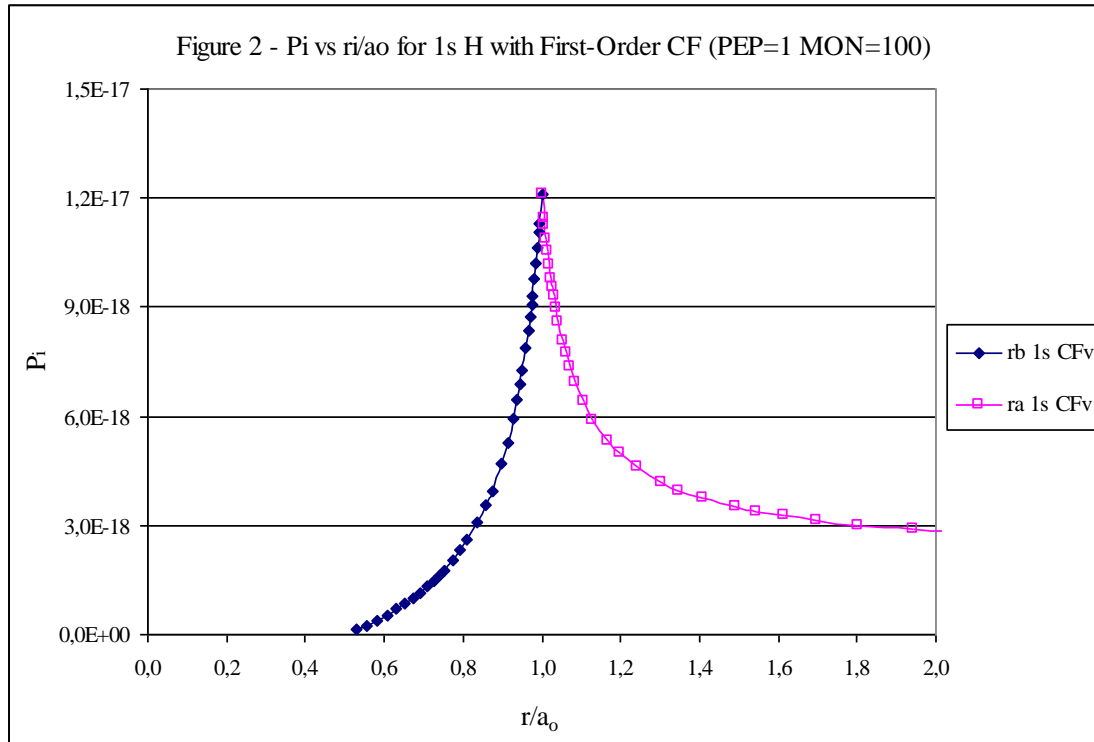
P_i function of E_i and d (23) for Hydrogen electron with PEP=1 and MON=100 gives (27). Also, (28) is derived from P_i function of r_i and d (26) where z=1 (P14 [1])

$$(27)\ P_i(1s\ H) = -\frac{\hbar}{4\left(2+\dfrac{100}{d}\right)}\frac{1}{E_i}$$

$$(28)\ P_i(1s\ H) = \frac{K_P}{\left(2+\dfrac{100}{d}\right)}\frac{r_i}{z}$$

Similarities between Figure 2 and 1s Hydrogen electron density curve:

a) Maximum Probability occurs in Bohr radius
b) Maximum Probability has finite limit. This is important because EE would always be in its Maximum Probability if its probability were infinite in that point. This happens in first probability approach performed with Birth wavelength division (d) [1].
c) Curve descends on both sides of Maximum Probability. Fall is more pronounced in EE_B which implies greater probability at r_i superior to Maximum Probability. For example, Pi is very low in r_B=0.5 a_o and still important in r_A=2 a_o

Flui Mechanism (Subdivision continued in EE as r→0) [1] is not applied because study is centred in Main Swinging Movement (MSM). According to Flui Mechanism, innermost lobe EE_B in ns electron can be subdivided into two new EE forming Secondary Swinging Movement (SSM) that meets what is seen for MSM. Successive SSM could be created and progressively approaching nucleus. Flui Mechanism analysis is postponed until Probability and its variable C_F have been developed.
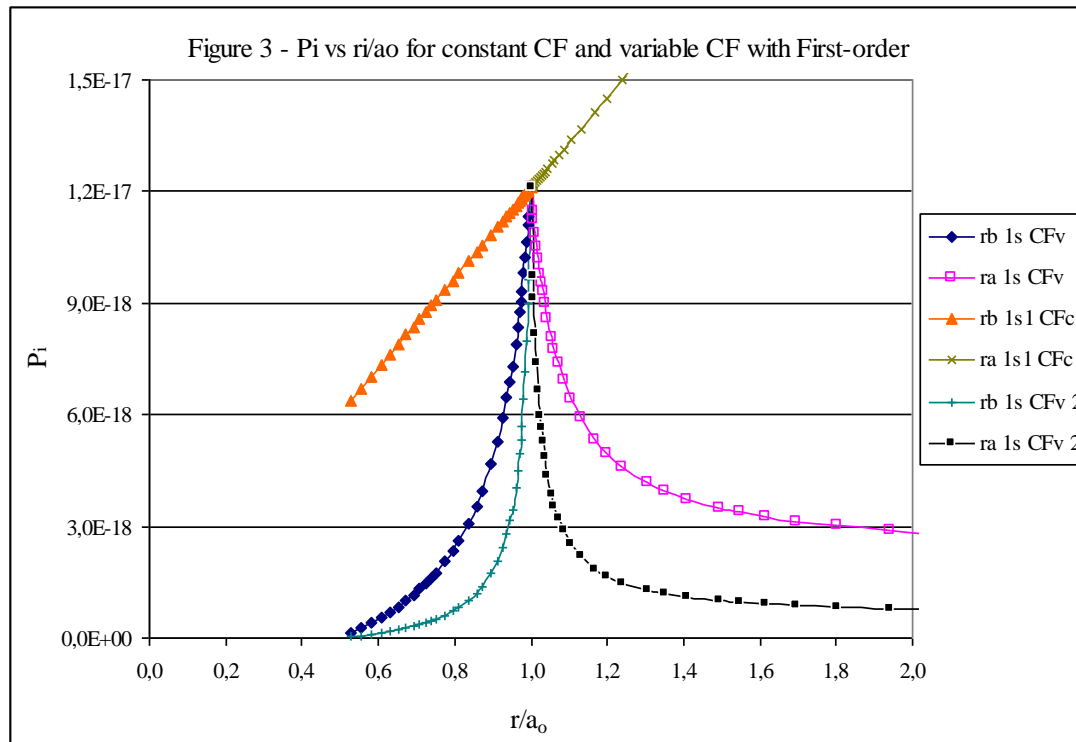
Infinite division Probability

(23) and (26), and therefore (27) and (28), are simplified to (29) if division tends to infinite. $(E_i)_{d→∞}$ is EE energy when d→∞. If d→∞, C_F is simplified to PEP factor since second term tends to zero.

$$(29) \ (P_i)_{d→∞} = -\frac{\hbar}{8} \frac{1}{E_i} = \frac{K_P}{2} \frac{r_i}{z}$$

As E_i is half E_o (Initial, birth or output energy) when d→∞ [1], (29) is transformed into (30). E_o is initial energy and is Ionization Energy (IE) measured experimentally whenever electron is in ground state (P03 [1]). IE data is taken from [3].

$$(30) \ (P_i)_{d→∞} = -\frac{\hbar}{4} \frac{1}{E_o} = \frac{K_P}{2} \frac{r_i}{z}$$

Constant and Variable Compaction Factor (abbreviated as CFc and CFv respectively for Figures 2 and 3 only as previously discussed) are represented in **Figure 3**. Figure 3 shows:

Figure 3 - Pi vs ri/ao for constant CF and variable CF with First-order

a) Abrupt change between Variable and Constant C_F
Constant C_F implies P_A grows constant as EE_A moves away from nucleus. Thus if C_F is constant, Maximum P_i is at infinite distance from nucleus. Instead, Maximum Probability is created when C_F is variable.

b) If PEP=1, Maximum Probability does not change when MON varies
This fact occurs because Maximum Probability is in infinite division when PEP=1 and MON has no influence on variable C_F when electronic extremes are in infinite division (29) and (30). This fact is graphically corroborated: variable C_F with MON=100 and MON=400 (represented by "CFv" and "CFv 2" respectively) have Probability Maximum at the same radial distance and with the same value. This point is also common nexus with constant C_F.

Probability curves varying PEP

Division (d) exponent is 1 when PEP=1 (21) (1s Hydrogen case). However, if PEP=2 for the rest as it is introduced in P24, there are important variations since exponent changes to 2. **Table 1** (**Annex 1**) shows C_F with PEP=1, PEP=2 and hypothetical PEP=3 for representative divisions. Representative divisions serve to have image of the entire range of division values with special focus on those intervals that are to be analyzed [1]. MON is arbitrarily set at 100.

Important variations when PEP increases are:

1) For divisions close to 1: C_F increases when PEP increases.
This fact is represented in **Figure 4** for PEP values indicated in P24 (PEP equal to 1 and 2). In Figure 4 is corroborated as from d=2 and as it approaches d=1, C_F with PEP=2 is higher that C_F with PEP=1. Consequently if d is close to 1, Pi when PEP=2 drops faster than PEP=1.

Figure 4 - PEP influence on C_F for d=[1-6] (MON=100)
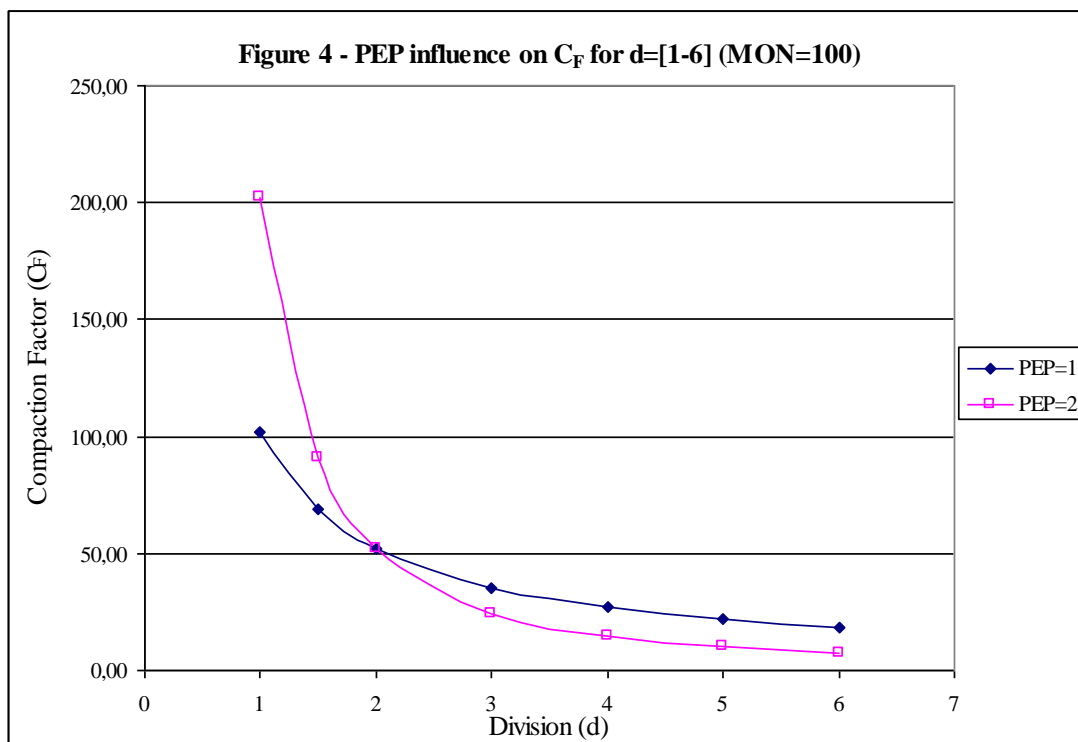
P12 Possible division (d) values [1] indicates that d must be positive (d > 0), but also remarks that further probability studies imply that $0 < d \leq 1$ have $P_i=0$ and if those studies are accepted d interval could be d > 1. d > 1 is going to be accepted although has not yet been explained because C_F is still unfinished.

2) If PEP increases, C_F tends to PEP at lower divisions.

In **Figure 5** is observed how curve associated with PEP=2 is directed more quickly to its PEP value since second summing annulment is faster when PEP is higher. Going before asymptotically to its PEP causes Probability Maximum displacement that is no longer produced at infinite division. This point is amplified in following section.

Figure 5. PEP influence on C_F up to $d=10^3$ (MON=100)
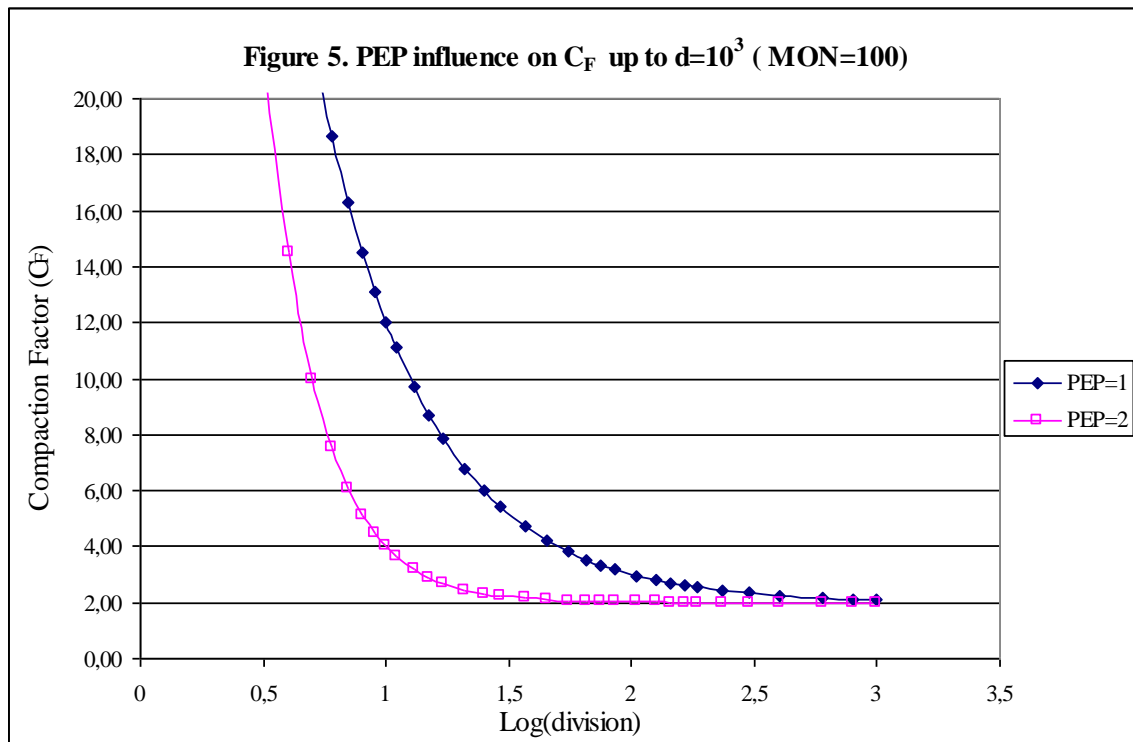
C_F Equality with PEP=2 and PEP=1

Considering C_F first-order approximation (21) and PEP values (1 and 2), both equations are equalized to obtain division at which both PEP have same C_F (31). For any MON, solution for division is given by (32) whose value is d=2 (Table 1).

$$(31)\ Md^2 - 2Md = 0 \qquad Md(d-2) = 0$$

$$(32)\ d = 2 \quad \text{Division for } C_F \text{ equality with PEP} = 1 \text{ and } 2$$

C_F relation with PEP=2 and PEP=1

Quotient ratio between PEP=2 and PEP=1 is expressed by (33). If limits are calculated in (33), is verified that relation (33) tends to infinite when d→0 and tends to one when d→∞ since both $(C_F)_{d\to\infty} = 2$. **Figure 5B** represents (33) up to d=200.

$$(33) \quad \frac{(C_F)_{PEP=2}}{(C_F)_{PEP=1}} = \frac{2 + \dfrac{2M}{d^2}}{2 + \dfrac{M}{d}} = \frac{2d^2 + 2M}{2d^2 + Md}$$

Figure 5B - C_F (PEP=2) / C_F (PEP=1) ratio (MON=100)
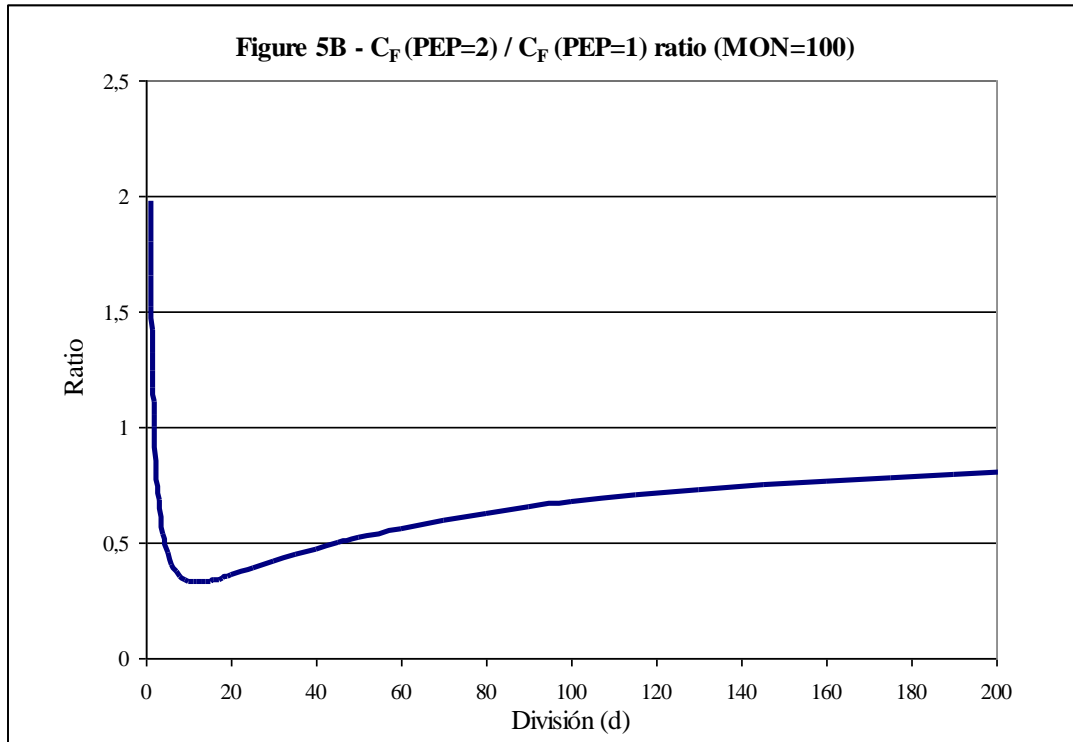
Helium. PEP evolves towards two

With Helium as an example, some aspects are introduced and are expanded and justified in later articles. This introduction serves to get first impression of PEP evolution effects when PEP=2.

PEP, MON, Ionization Energy (IE as E_o) [3] and charge for Hydrogen and Hellium are summarized in **Table 2**.

| Table 2 - z, PEP and MON for H and He				
Atom	Electronic System	z	PEP	MON
Hydrogen	$1s^1$	1	1	100
Helium	$1s^1$	2	2	100
	$1s^2$ (*)	1	2	200
(*) MON and z are approximate for this electronic system				

(*) MON and z are approximate for this electronic system since:

a) P14 [1] is a good approximation for ns^2 electronic systems, although is only valid for opening electrons of each n quantum number (ns systems). P14 results in incorrect approximation for electronic systems rest. Accepting P14 application for $1s^2$ Helium, charge is 1 (z=Z-x=2-1=1), where Z is atomic number and x is number of most internal Electronic Systems (in this case is one: 1s).

b) MON is related to initial MON (100) in a simple way such that if its z is half, its MON has inverse ratio and is double (200).

c) PEP is 2 according P25.

Figures 6 and 7 devoted to $1s^2$ Helium show change produced by variation in PEP when all other variables are constant (z, MON and Energy). **Figure 6** presents Pi to higher ri (5 A). In This Figure 6 one can get overview of PEP modification effect and corroborate what is seen in Table 1 and Figures 4 and 5. Figure 6 highlights:

Figure 6 - P_i for E_o=IE He $1s^2$ (MON=200) influenced by PEP variation
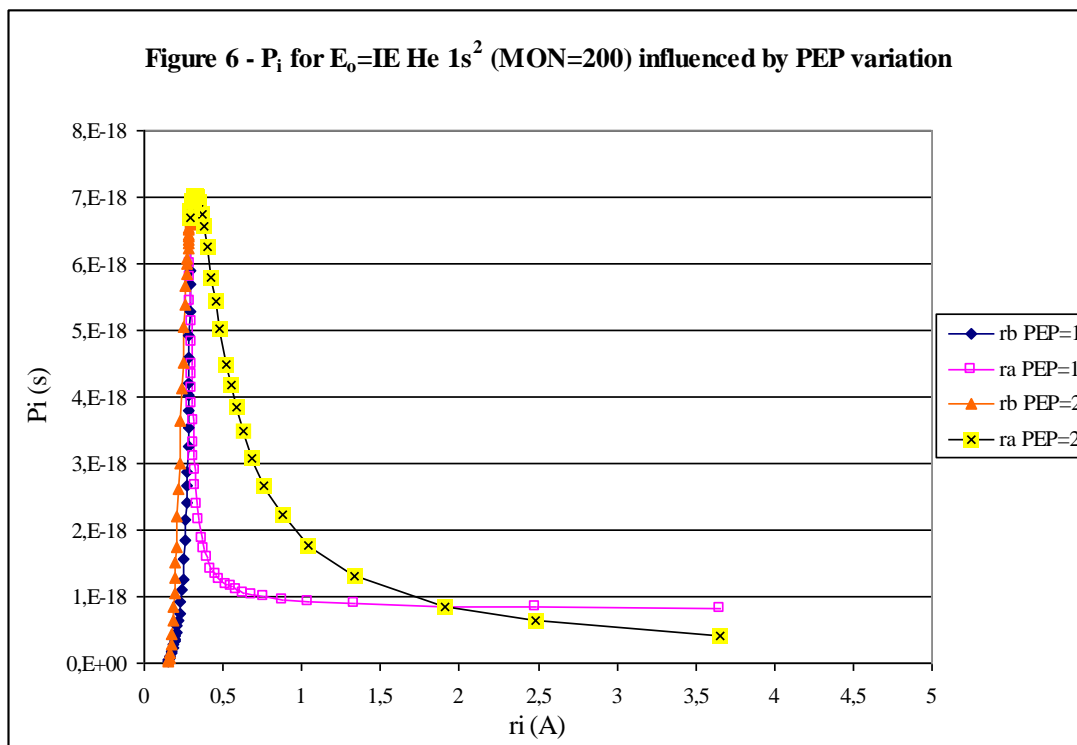
a) For high division: high division zone is in approximate d>200 coinciding with MON. Pi remains more static when PEP=2 since $C_F \approx$ constant than when PEP=1. This effect becomes more marked for hypothetical higher PEP. Therefore, when PEP=2, P_i vs. r_i curve becomes more rounded and leaves maximum sharp peak that is obtained when PEP=1. High division zone is enlarged in Figure 7.

b) For medium division: medium division zone is in approximate range d≈[2-200]. As in MON=100 previous case, range is between d≈2 and d≈MON=200. For this division range, C_F is lower when PEP=2 than when PEP=1. This C_F lower implies less compaction (↑ci) and, consequently, higher Pi. This higher Pi continues tendency to curve rounding already seen in the previous point.

c) For low division: low division zone is in approximate range d≈]1-2[. As PEP increases from 1 to 2, C_F increases rapidly when d<2. Result is P_i high drop approaching faster to P_i=0 than when PEP=1. This effect is more marked in A extern EE probability (P_A) and allows practically to fulfil Feliz First Solution (P24) for PEP=2 with first-order approximation.

For PEP=1 and r→∞, P_A has dropped much more that with P_A progressive increase trend that occurs when C_F is constant (Figure 1). Even so and with variable CF, there comes a point where P_A barely drops. This happens because C_F increase (C_F increase → ↓P_A (15)) is compensated by r_A increase (r_A↑ → ↑P_A (15)).

In the following article, C_F is extended to infinite theoretical order. This infinite order allows to fulfil P24 for PEP=1 and PEP=2: "One definite volume must have a closed wall to conquer a space".

Maximum probability zone is enlarged in **Figure 7** as indicated in point a) before. The extended zones is r_i = [0,2-0,4] A. Figure 7 highlights:

Figure 7 - Figure 6 Zoom in Maximum Pi
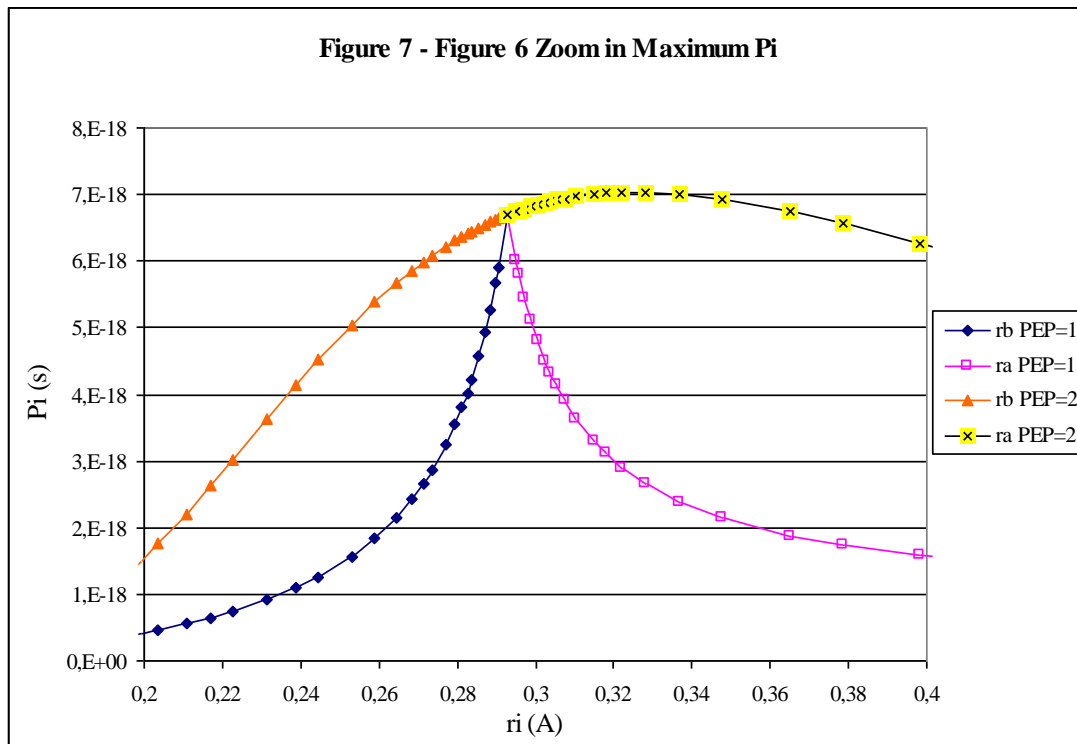
a) P_i curve rounding that occurs when PEP increases to 2 is best observed.

b) Maximum P_i with PEP=2 no longer corresponds to that indicated by d→∞ as does with PEP=1. In this case, maximum Pi changes from r≈29 pm and d→∞ with PEP=1 to r≈32 pm and d≈60 with PEP=2. In later article, method is developed to provide more precisely r_A and d at which maximum P_A occurs.

c) As indicated with previous point suffix A (P_A and r_A), maximum Probability occurs in A electronic extreme. Both electronic extremes have same C_F stagnation

($C_F \approx$ constant with high divisions), but A electronic extreme has a higher r_i (15) and lower Energy (11) that imply higher Probability.

Return to Birth by probability coupling

At the beginning of article, P22 is titled "Internal electron conditions". P22 deepens that there is no repulsion between electrons when atom is in charge saturation (P04) [1] and also internal electron (ns) have a decisive role in incoming electrons. Even with approximations indicated in Table 3 for $1s^2$ electron and missing electron coupling development, can be anticipated that in **Figure 8:**

Figure 8 - P_i vs r_i for He with 1s and $1s^2$ Electronic System
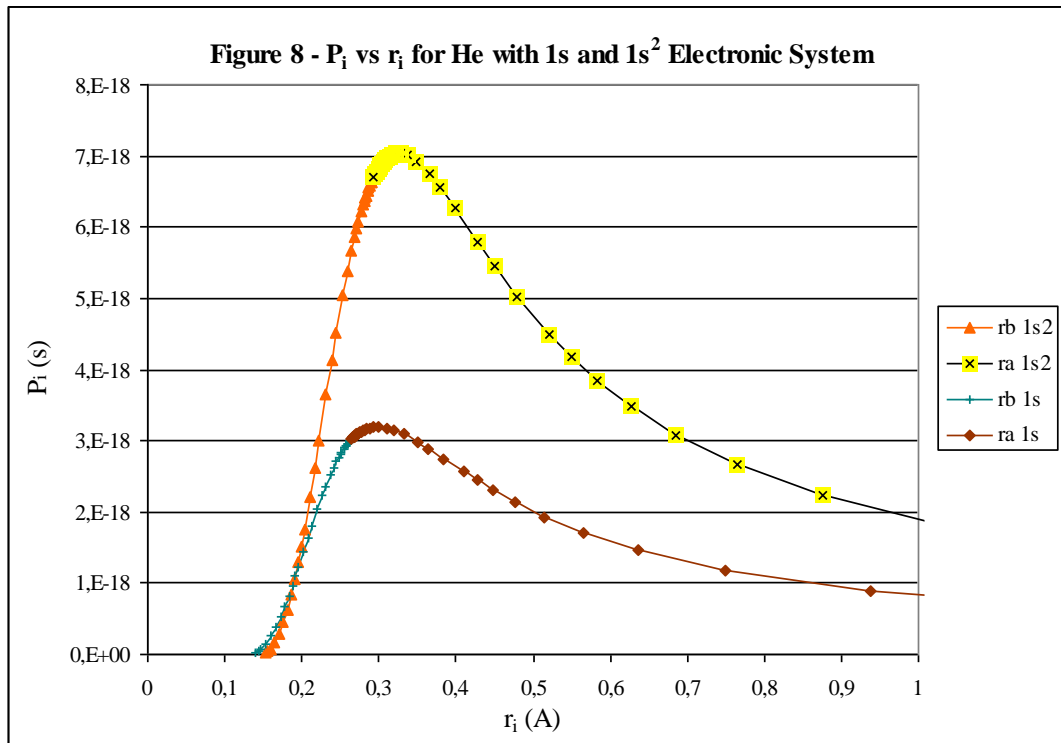
a) 1s and $1s^2$ system curve morphology is similar.
b) Maximums position is similar.
c) 1s and $1s^2$ system curves appear to overlap at d_B (internal electronic extreme division) low and intermediate.

Therefore, can be concluded that a possible P_i curves coupling is intuited in Figure 8 as is introduced in P22 with: "Birth by probability coupling".

MON also has an important role and its decrease implies a lower denominator (23) and (24). Denominator decrease causes P_i curve widening whose maximum is directed towards r_A higher.

Orbital Representation

Parallelism with orbital representation, initiated in [2], is continued considering:

a) c_i (2) is defined with C_F and λ_i. C_F is calculated with division (d), PEP and MON (21) to (28) and λ_i is known from E_i [1]. E_i, d and r_i are related to each other from Victoria Equation [1].

b) Once r_i and c_i are known, H_i is calculated for each circular orbit [2].

c) Orbital Turn Probability Curve has been related to electronic density distribution and its maximum with electronic density maximum.

d) C_F influencing c_i has already developed up to variable CF with First-order approximation.

Plane ci-hi Representation

It remains to represent orbital shape with variable C_F. Orbital with constant C_F is represented in [2]. In that representation, H_i is limited to 1.2 A since c_i continues to increase with H_i in contrast to what happens in orbital. Now, **Figure 9** represents orbital with variable C_F up to h_i=2.5 A. Carbon outermost electron has been selected for Figure 9 with Ionization energy [3], PEP=2 and for example MON=70 and z=1. Figure 9 improves the one realized in [2]. Now, shape is closer to what is known as orbital and presents probability enclosure at both ends.

Figure 9 - $2p^2$ C representation (Eo=IE PEP=2 z=1 MON=70)
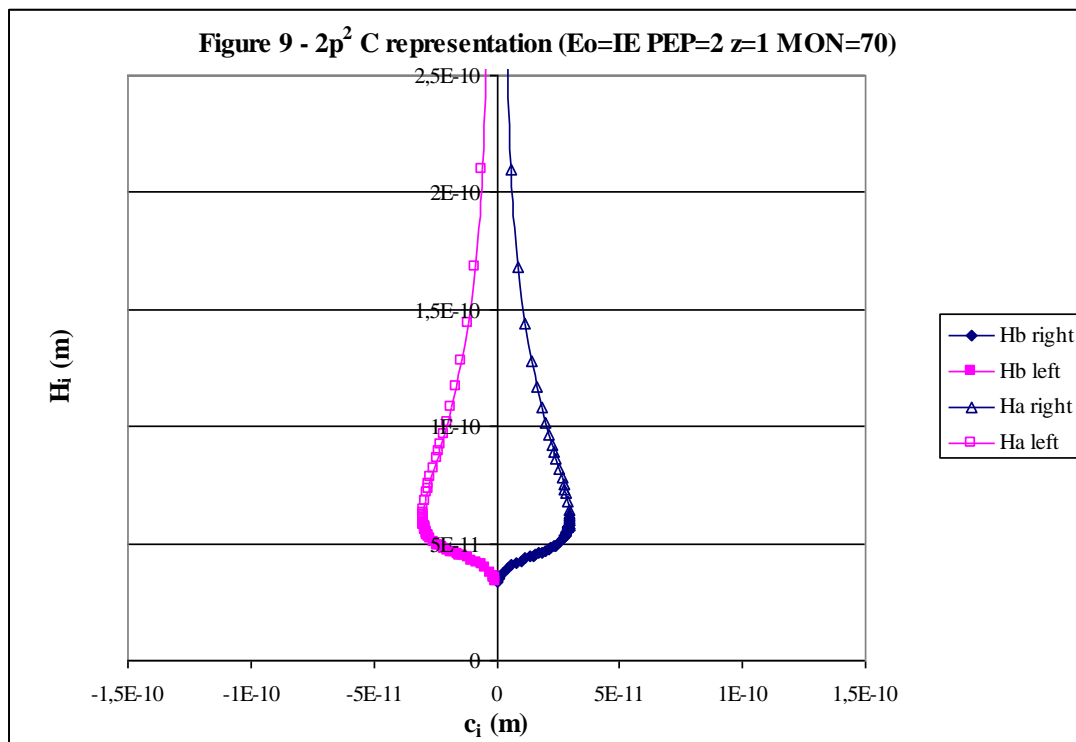
Orbital Plane Representation

Orbital Plane Representation is electronic extreme orbital movement representation "seen from nucleus". This representation is in **Figure 10 and 11**. Circular orbit marks are separated by 10 degrees angle. Both graphics represent Carbon outermost electron with Figure 9 data (MON=70, z=1 and Ionization Energy [3]), but Figure 10 with PEP=2 and Figure 11 with PEP=1.

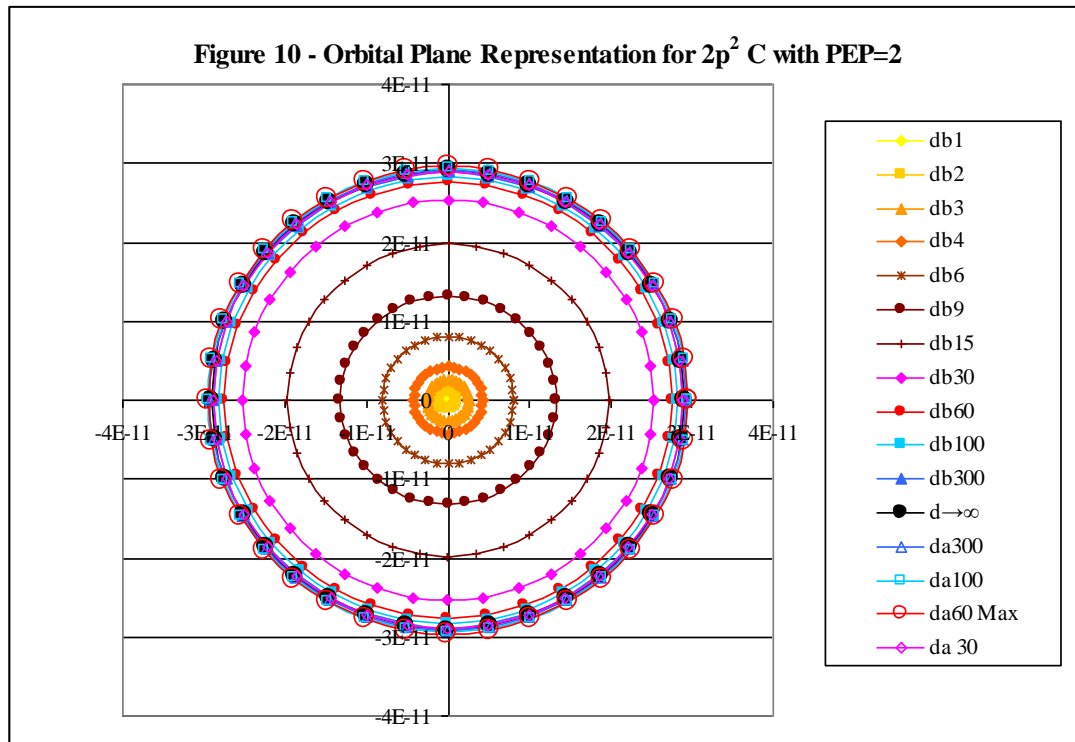Figure 10 - Orbital Plane Representation for $2p^2$ C with PEP=2

Figure 10 confirms c_i stagnation for high divisions as a result of C_F paralysis for high divisions when PEP=2 (Figure 5). In this stagnation zone is Maximum Probability that occurs with d_A=60 (where d_A is A electronic extreme division) and not with d→∞. In this case can be approached that c_i stagnation zone has c_i large concentration from d_B≈[60-∞] and from d_A≈[20-∞]

Figure 11 uses PEP=1 instead of PEP=2 (Figure 10). PEP=2 is P25-appropiate since PEP=1 is only valid for 1s. When PEP=1, following changes are observed with respect to PEP=2:

a) Maximum c_i occurs with d→∞

b) c_i stagnation is not present when c_i is close to maximum. Thus, for example, c_i with d→∞ is far from c_i with d=300 when in contrast these c_i are very close if PEP=2. Consequently, circular orbits are more numerous in intermediate zones or close to maximum when PEP=1 or PEP=2 respectively.

c) Division that marks maximum with PEP=2 (d_A=60) is much more internal when PEP=1. In fact, when PEP=1, outer and inner orbital circumference (c_A and c_B respectively) are almost equal with slightly higher value for EE_A. The difference between c_A and c_B is increased as d is lower. This fact does not happen if PEP=2.

Figure 11 - Orbital Plane Representation for $2p^2$ C with PEP=1
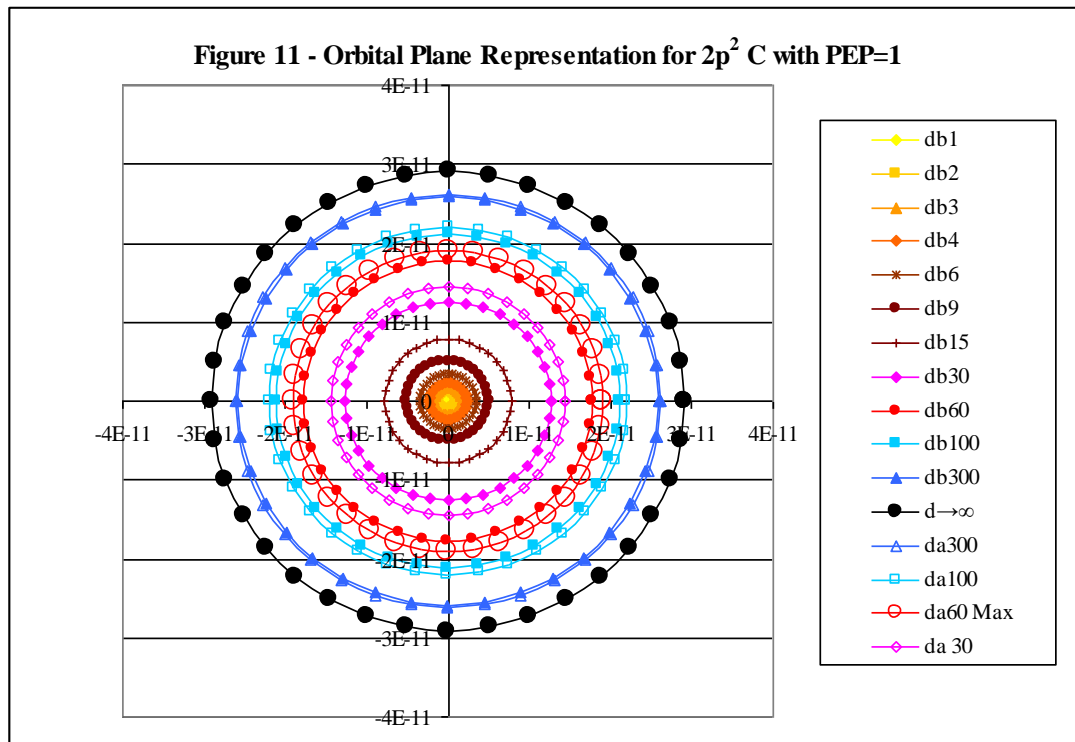
Figure 12 and 13 (Annex 2) are focused on differences between c_A and c_B on the one hand and on the other hand variations caused in c_i by choosing PEP=1 or 2. Broadly and pending definitive C_F, conclusions for P_i vs r_i can be applied to c_i vs log(division) (**Table 3**). Strong c_i increase with PEP=2 and medium division causes the great differential between c_A and c_B in $d\approx9$ and, when PEP=1, a more blurred ci maximum in $d\approx6$ (Figure 13)

Table 3 - c_i vs. log(d) for PEP=1 and PEP=2		
	PEP=2	PEP=1
Maximum c_i	EE_A	EE_i (d→∞)
high division	$c_i\approx$constant (c_i stagnation)	c_i ↑
medium division	c_i ↑↑	ci ↑
Low division	ci ↑	ci ↑

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Abbreviations List

Suffix indicates electronic extreme considered and i suffix is used to both electronic extremes (EE_i). Following Table indicates abbreviations used in this theory and its use in article in question is marked with X. 3 is present article

Abbreviations Table						
Abbreviation	**1**	**2**	**3**	**4**	**5**	**Meaning**
α_{NOA}					X	Nucleus-Orbit-Angle
a_o			X			Bohr radius
AL					X	Angular Limit
c_i		X	X	X	X	EE Orbital circumference
C_F		X	X	X	X	Wavelength compaction factor
C_{MON}					X	C_F without C_{POTI}
C_{POTI}					X	Probabilistic Orbital Tide in Third Feliz Solution
$C_{POTI-AL}$					X	C_{POTI} Angular Limit
$C_{POTI-GAL}$					X	C_{POTI} Geometric Angular Limit
$C_{POTI-LAG}$						C_{POTI} Lobe Always growing
d	X	X	X	X	X	Birth wavelength division or simply, division
EE	X	X	X	X	X	Electronic extreme
E_o	X	X	X	X	X	Initial, birth or output energy
E_i	X		X	X		EE energy
Ek_i	X		X	X		EE kinetic energy
EP_i	X			X		EE potential energy
ES	X	X				Equi-energetic state
f	X		X	X	X	Constant in Victoria Equation
F	X		X	X	X	Constant f multiplied by z
GAL					X	Geometric Angular Limit
h	X	X	X		X	Planck´s constant
ħ		X		X	X	Reduced Planck´s constant
h_i	X		X			Planck´s constant adapted to EE
H_i		X	X	X	X	EE Circular orbit height
IE	X	X		X	X	Ionization Energy
m_e	X	X	X	X	X	Electron mass
m_i	X		X	X		EE mass
J				X	X	C_F order in Second Feliz Solution (From x=1 to J)
K_P			X			Probability constant in Variable C_F
λ_{Birth} λ	X	X		X	X	Birth wavelength
λ_c	X					Electron classic wavelength

Symbol						Description
λ_i	X	X	X	X		EE wavelength
$\lambda_{i\text{-}Birth}$	X					EE wavelength when $d\to\infty$
LAG					X	Lobe always growing
M			X	X	X	MON (Modified Orbital Number)
MON			X	X	X	Modified Orbital Number
NIN	X		X	X		Negative in Negative (Electron in electron concept)
OAM		X				Orbital Angular Momentum
OPA		X				Orbital Planes Axis
P_i			X	X	X	EE Probability
P			X	X	X	PEP (Principal Electronic Part)
PEP			X	X	X	Principal Electronic Part
q_e	X					Electron charge
q_i	X					EE charge
q_{ip}	X					Proton charge
r_{AB}	X					Difference in nucleus distance between EE_A and EE_B
r_O	X					Nucleus distance when EE_i is in pivot or initial position
r_i	X	X	X	X	X	Distance between nucleus and EE
SAM		X				Spin Angular Momentum
SMM		X				Spin Magnetic Momentum
SSM	X		X			Secondary Swinging Movement
v_i	X	X	X	X	X	EE velocity
z	X	X	X	X	X	Effective nuclear charge
Z	X					Atomic number

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Annex 1

Table 1. C_F for PEP=1, 2 and 3 and MON=100			
Division	**PEP**		
	PEP=1	**PEP=2**	**PEP=3**
1	102,00	202,00	302,00
1,5	68,67	90,89	90,89
2	52,00	52,00	39,50
3	35,33	24,22	13,11
4	27,00	14,50	6,69
5	22,00	10,00	4,40
6	18,67	7,56	3,39
7	16,29	6,08	2,87
8	14,50	5,13	2,59
9	13,11	4,47	2,41
10	12,00	4,00	2,30
11	11,09	3,65	2,23
13	9,69	3,18	2,14
15	8,67	2,89	2,09

17	7,88	2,69	2,06
21	6,76	2,45	2,03
25	6,00	2,32	2,02
29	5,45	2,24	2,01
37	4,70	2,15	2,01
45	4,22	2,10	2,00
55	3,82	2,07	2,00
65	3,54	2,05	2,00
75	3,33	2,04	2,00
85	3,18	2,03	2,00
105	2,95	2,02	2,00
125	2,80	2,01	2,00
145	2,69	2,01	2,00
165	2,61	2,01	2,00
185	2,54	2,01	2,00
235	2,43	2,00	2,00
300	2,33	2,00	2,00
400	2,25	2,00	2,00
600	2,17	2,00	2,00
800	2,13	2,00	2,00
1000	2,10	2,00	2,00

Annex 2

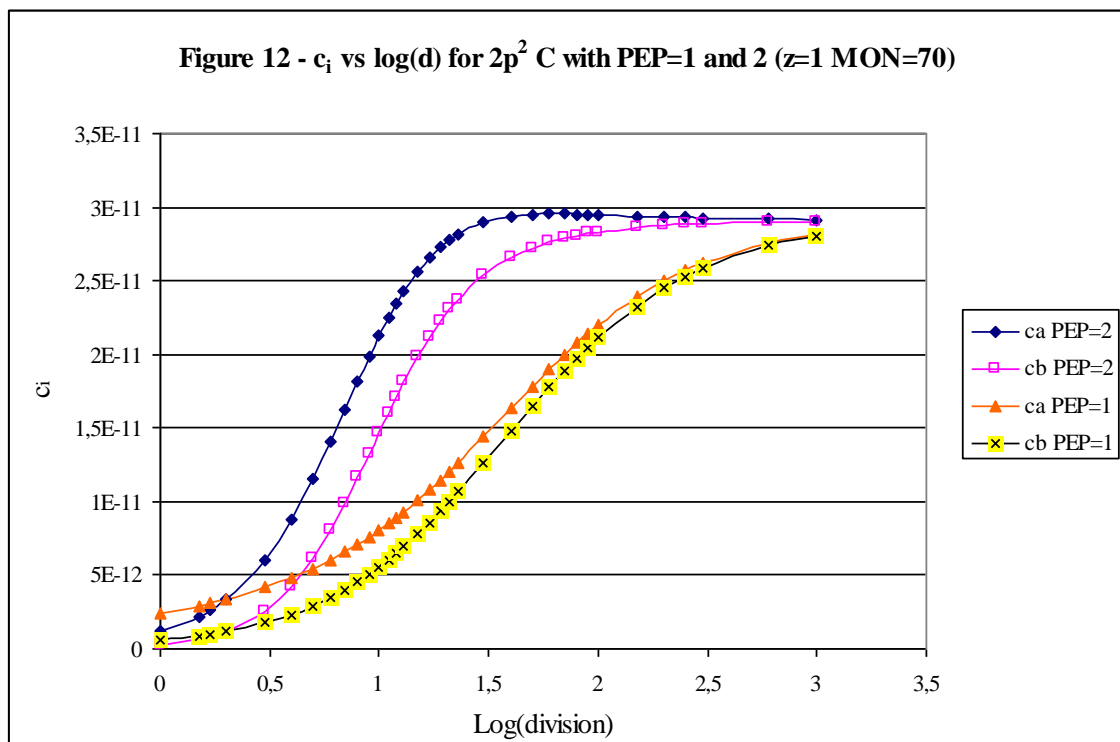Figure 12 - c_i vs log(d) for $2p^2$ C with PEP=1 and 2 (z=1 MON=70)

Figure 13 - c_A-c_B vs log(d) for $2p^2$ C with PEP=1 and 2 (z=1 MON=70)