

FORMATION OF STARS AND GALAXIES WITH THEIR STRUCTURAL FORMS

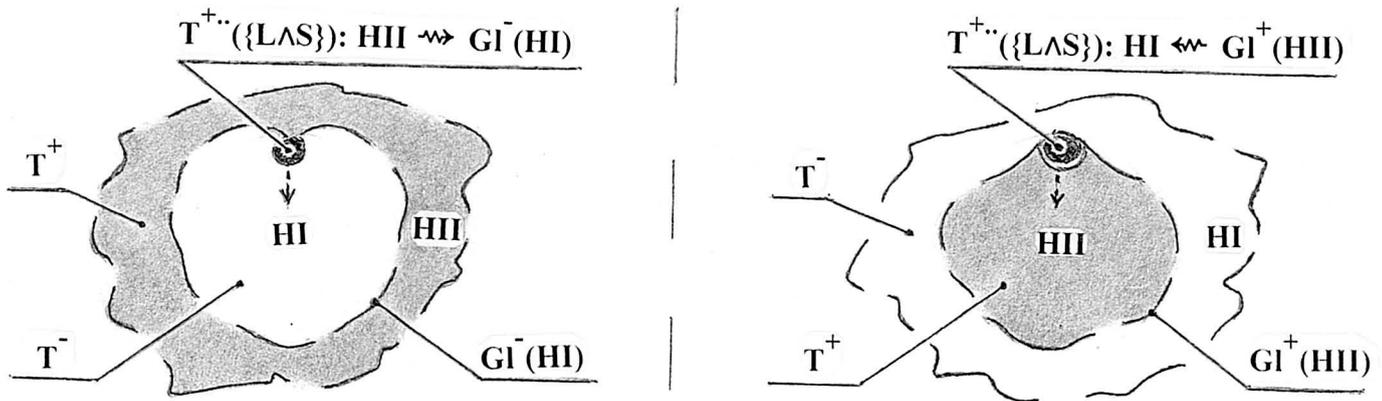
ANNOTATION

This work is a continuation of 1701.0488 with an extension of 2009.0160 .
 It shows how and where Stars and Galaxies are formed - on the example of the Sn type , and the resulting structural forms reflect their properties.

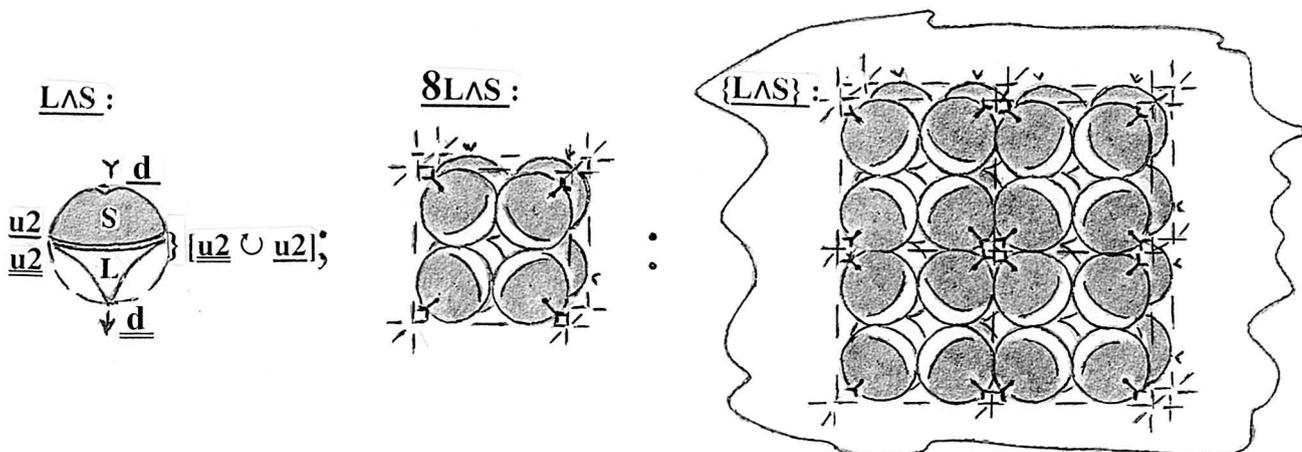
DESCRIPTION

1.STARS

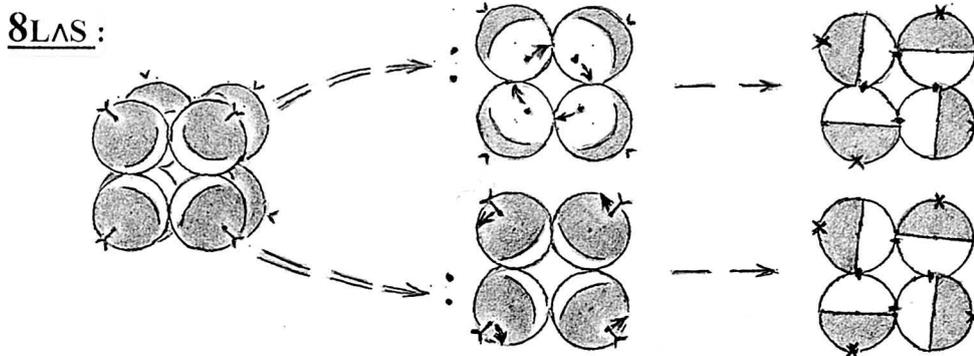
Star formation occurs in a thermal environment (TE , TP) ~ \check{T}^{\pm} , in "closed" areas - "Globules" GI \mp with HI (\check{T}^{-}) or HII (\check{T}^{+}) from their boundaries in dense areas $\check{T}^{+\dots}$ as a result of compression \check{T}^{+} from the action of shock waves \rightsquigarrow :



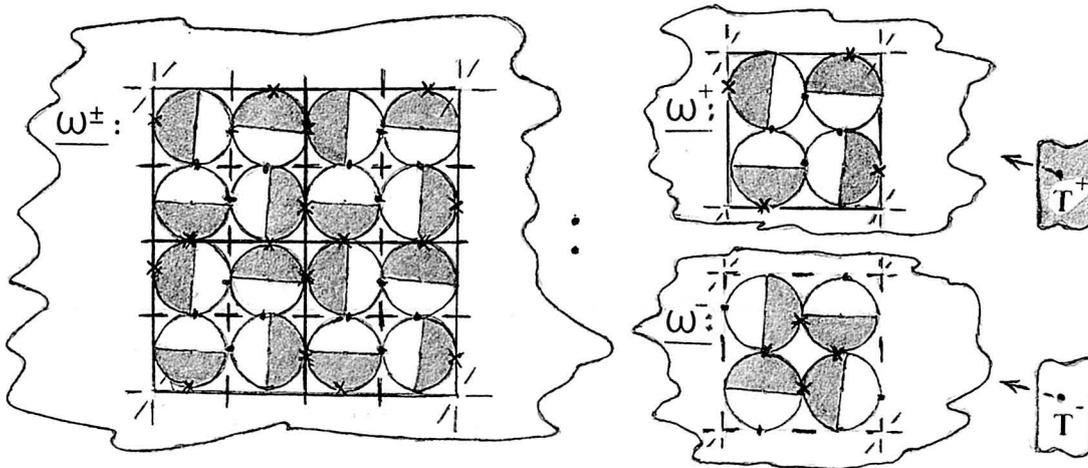
They entail the formation there of particles LAS - monatomic hydrogen H, described earlier, in the set { LAS }, consisting of 8 of its elements in the continuation:



Initial activity of neighboring homogeneous quarks $\{ \underline{d} \}$ and $\{ \underline{u} \}$ particles LAS from the elements of the set $\{ \text{LAS} \}$ leads them to a "divergence" in a uniformly divergent direction along the only existing route:



, forming from $\{ \text{LAS} \}$ the image of connected homogeneous planes - the "basic" state of the plasma $\omega^\pm (\omega^+, \omega^-)$, in the area of its formation:



The bonds on the plane are formed due to the activity of quarks : $\underline{d} (\text{LAS}_{i,i}) \cup \underline{u} (\text{LAS}_{i+1,i}) ; \underline{d} (\text{LAS}_{i,i}) \cup \underline{u} (\text{LAS}_{i-1,i})$, and the bonds of the planes through $\{ [\underline{u} \cup \underline{u}] \}$.

Its "decay" from the unstable layer of the surface of the region ω^\pm will depend on the "immensible" environment.

If it is "hot", then the activity, and hence the connection of all its "cold" quarks \underline{d} will be stronger than the "hot" \underline{d} and this leads to the "cutting" of this layer of the surface ω^\pm along the edges of the "straight" lines: - .

We get a "hot", rarefied gaseous, plasma $\{ \omega^+ \}$ with an arbitrary connected set of its elements ω^+ and open "hot" quarks \underline{d} into the environment.

Thus, rarefaction of a "hot" plasma - a "cut" of its "basic" state from an unstable surface layer, transfers it to a gaseous state with active open "hot" quarks raising the ambient temperature.

And its greater rarefaction, on an equal volume, leads to a greater temperature increase in its environment.

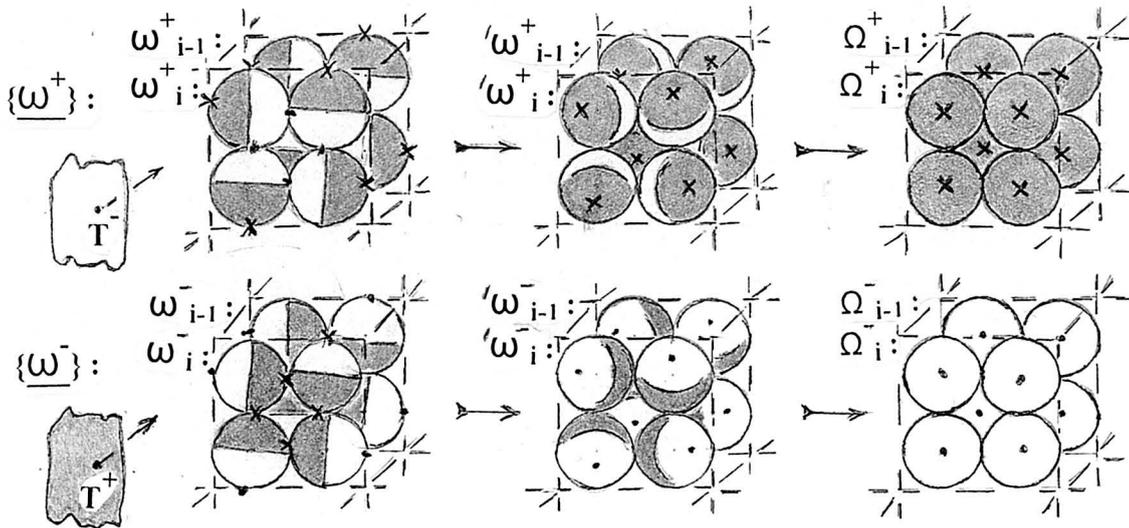
This confirms the increase in temperature in the layers of the Sun's surface in its activity from its surface : "Photosphere" → "Chromosphere" → "Crown".

And if the "immersed" medium is "cold", then the activity, and hence the connection of all its "hot" quarks \underline{d} will be stronger than "cold" \underline{d} and this leads to "cutting" this layer of the surface ω^\pm along the edges of the "dotted" lines: - - - .

We get "cold", rarefied gaseous, plasma $\{\omega^\pm\}$ with an arbitrary connected set of its elements ω^\pm and open "cold" quarks \underline{d} into the environment.

As in the case of "hot", "cold" plasma, when rarefied, leads to cooling of the environment from its gaseous state .

And the thermal effect of the environment on the structure of the plasma region, and the stable layer from surface leads to its subsequent deformation :



ω^\pm - initial stages of deformation ω^\pm ;

Ω^\pm - maximum deformation ω^\pm .

Bonds in a deformable plasma ω^\pm are formed under the action of active quarks :

$$- / \omega^+ : \underline{d} (LAS_{i,i}) \cup \underline{u2} (LAS_{i-1,i}, LAS_{i,i+1}) ; \underline{d} (LAS_{i,i}) \cup \underline{u2} (LAS_{i+1,i}, LAS_{i,i-1}) ;$$

$$- / \omega^- : \underline{d} (LAS_{i,i}) \cup \underline{u2} (LAS_{i-1,i}, LAS_{i,i+1}) ; \underline{d} (LAS_{i,i}) \cup \underline{u2} (LAS_{i+1,i}, LAS_{i,i-1}) ;$$

, and in Ω^\pm :

$$- \Omega^+ : [\underline{u2} \cup \underline{u2}] (LAS_{i,i}) \rightleftharpoons [\underline{u2} \cup \underline{u2}] (2 LAS_{i-1,i}, 2 LAS_{i+1,i}) ;$$

$$\underline{d} (LAS_{i,i}) \cup \underline{d} (LAS_{i,i+1}) ; \underline{d} (LAS_{i,i}) \cup \underline{d} (LAS_{i,i-1})$$

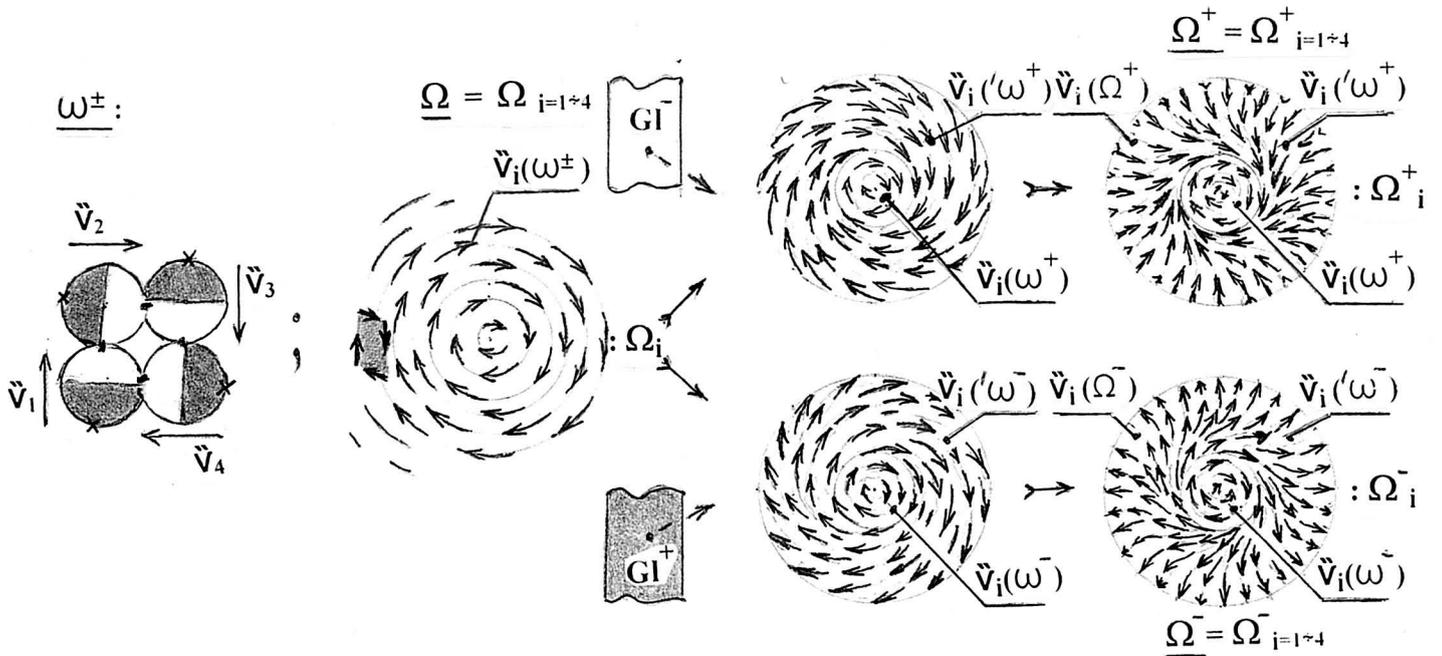
$$- \Omega^- : [\underline{u2} \cup \underline{u2}] (LAS_{i,i}) \rightleftharpoons [\underline{u2} \cup \underline{u2}] (2 LAS_{i-1,i}, 2 LAS_{i+1,i}) ;$$

$$\underline{d} (LAS_{i,i}) \cup \underline{d} (LAS_{i,i+1}) ; \underline{d} (LAS_{i,i}) \cup \underline{d} (LAS_{i,i-1}) ;$$

The shape of the maximum strain plasma will have the form Ω^\pm .

The formation of regions ω^\pm in \check{T}^{++} occurs discretely at the boundaries of the "Globule", accumulating there and forming, "peeling off" from its surface from the side of the "Globule", its own kind of plasma .

And the "accumulated" significant area Ω , as a result of this, will begin to move towards the center of the «Globule» with the deformation of its plasma structure from the surface in the continuation :

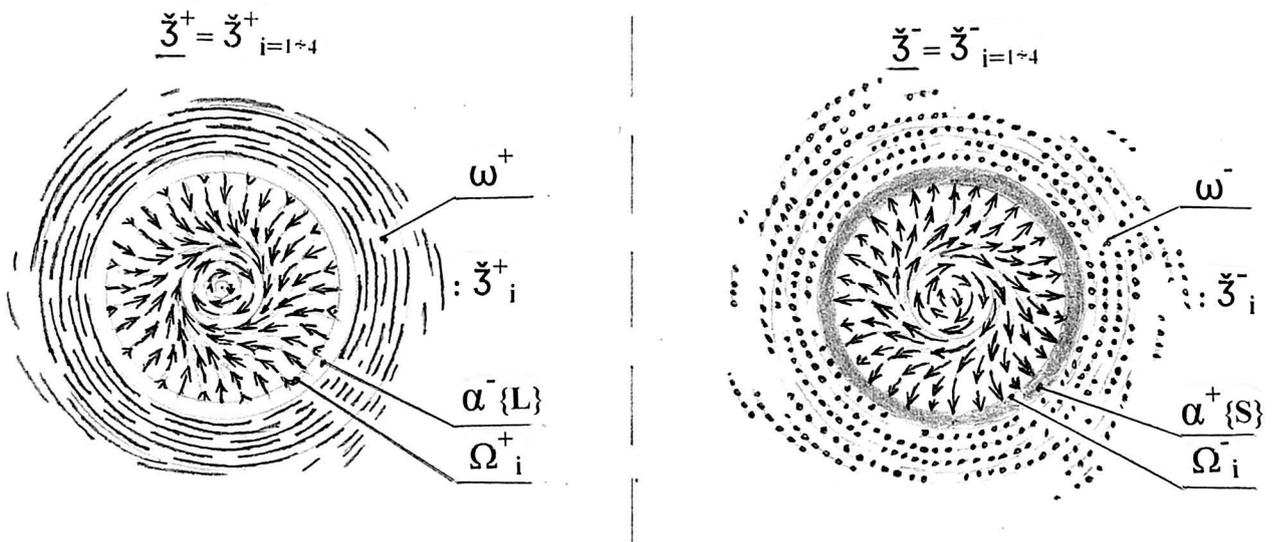


, taking, at its beginning, the form of a plasma of maximum deformation, giving this area a stably-rigid: solid appearance .

We get the "kernel " - $\Omega^\pm (\Omega^+, \Omega^-)$ at the center of the "Globule" GI^\mp .

The remaining, insignificant, sections ω^\pm will replenish the structural shell of this core .

There is a birth of Stars $\check{z}^\pm (\check{z}^+, \check{z}^-)$:



, where the stars "red dwarfs", "yellow dwarfs", "white dwarfs" will be assigned to the first type \check{z}^+ , and stars: "brown dwarfs", "black dwarfs" to the second \check{z}^- .

Now we will confirm the existing properties of the Sun, as a star studied in detail, according to its structure . \check{z}^+ .

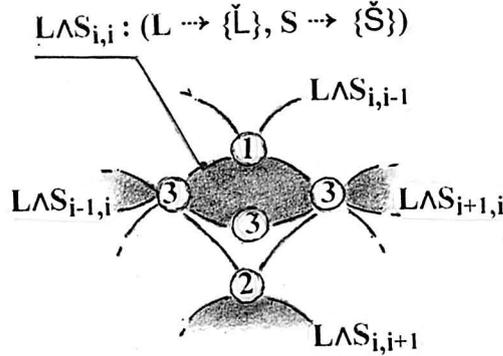
Namely: "types" of manifestations of its cyclic activity and changes in the magnetic field strength.

Let's move on to the description.

The structural image of the surface layer of the "core" of the Sun leads to its particles **LAS** to a "nuclear" (\check{A})- reaction, according to the previously described scenario of the formation of a "neutron", with the decay of their elements **L** and **S** on the $\{\check{L}\}$ and $\{\check{S}\}$ in their "combination":

-**L** \rightarrow $\{\check{L}\}$: "antineutrino", "modified-(**L**)", "electron-(e^-)";

-**S** \rightarrow $\{\check{S}\}$: "neutrino", "modified proton-(**S**)", "positron-(e^+)";



, in interactions:

$$1 : \underline{d}(LAS_{i,i}) \cup \underline{d}(LAS_{i,i-1}) ;$$

$$2 : \underline{d}(LAS_{i,i}) \cup \underline{d}(LAS_{i,i+1}) ;$$

$$\{3\} : [\underline{u2} \cup \underline{u2}](LAS_{i,i}) \neq [\underline{u2} \cup \underline{u2}](2LAS_{i-1,i}, 2LAS_{i+1,i}) .$$

This reaction proceeds by "swelling" of these particles **LAS** by "weakening" the structure (**TE**, **TP**) of their surface, continuing until their decay.

Thus, the structural image of the surface layer of the "core" decomposes together with its components **LAS**.

\check{A} - the reaction performs a "directed" action on the particles **LAS** from the side of **S** and "containment" of it from the side of **L** structure Ω^+ .

As a result, the elements $\{\check{S}\}$ will be ejected from the surface layer Ω^+ , and their "retained" $\{\check{L}\}$ will remain in the layer of its environment, leading, by "cooling", the structure of its remaining surface layer to the maximum deformation.

This entire continuous process leads the "core" Ω^+ to axial rotation, with possible oscillation, and the formation of a region around it from $\{\check{L}\}$: "shells" - $\alpha^- \{\check{L}\}$.

And since the radius Ω^+ will decrease due to \check{A} - reactions, then its area $\alpha^- \{\check{L}\}$ will also grow.

Walkthrough $\{\check{S}\}$ to the surface of the star occurs with partial capture $\{\check{L}\}$.

It, in some places, by its effect on the surrounding plasma, by "heating", leads it to the form of maximum deformation with \check{A} – replenishment reaction $\{\check{S}\}$ and $\{\check{L}\}$: $\{\check{S}\}$ and $\{\check{L}\}$.

where $\{\check{S}\} \in \{\check{S}\}$ and $\{\check{L}\} \in \{\check{L}\}$.

And the elements $\{\check{L}\}$, by their influence - "cooling", decompose, in places, the plasma surrounding them into components:

- Hydrogen (H) and helium (He) from the elements ω^+ ;
- other types of particles from a connected set $\{\omega^+\}$.

There are also possible cases of formation LAS from shock waves created $\{\check{S}\}$ in the areas "covered" by them $\{\check{L}\}$ and taking ω^+ the form of replenishment of the current plasma.

As a result of the passage of $\{\check{S}\}$ on the surface of the Sun, the following will occur:

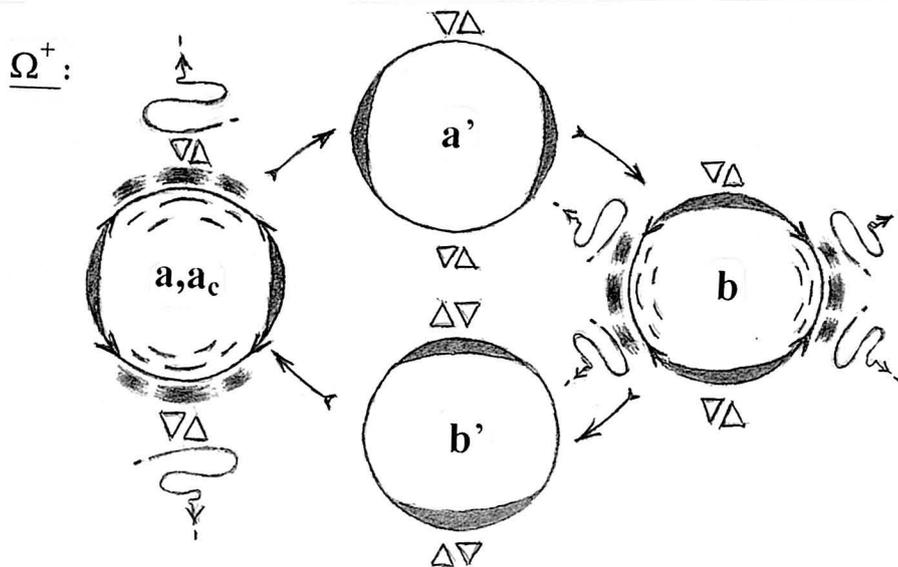
a) _ from "dark cold" formations $\{\check{L}\}$:

- "dark spots", "coronary holes": large "captured", from $\{\check{S}\}$, portions $\{\check{L}\}$;
- "granule edges": related $\{\check{L}\}$ from outgoing streams $\{\check{S}\}$;
- other manifestations $\{\check{L}\}$.

b) _ from "bright hot" formations $\{\check{S}\}$:

- "torches": outgoing streams $\{\check{S}\}$ from the large areas "captured" by them $\{\check{L}\}$, passing after their completion into a "protuberanzen";
- "granules": freely outgoing streams $\{\check{S}\}$;
- other manifestations $\{\check{S}\}$.

And the process of "swelling" of the entire surface layer Ω^+ in the Sun, from the "weakening" of the structural surface of its particles, will flow unevenly - changing in sections in a cycle:



Consider the passage of this cycle formed by the modes $\underline{a}_c, \underline{a}, \underline{a}', \underline{b}, \underline{b}'$:

$$.. \rightarrow \underline{a}, \underline{a}_c \rightarrow \underline{a}' \rightarrow \underline{b} \rightarrow \underline{b}' \rightarrow ..$$

Mode a_c is the “starting” and “supporting” - it does not allow the chains of the main continuous cycle to fade:

$$.. \rightarrow \underline{a} \rightarrow \underline{a}' \rightarrow \underline{b} \rightarrow \underline{b}' \rightarrow ..$$

, and a – continuation of b' .

These modes are equivalent in their functional action.

Let's consider them in more detail .

-a_c: the action of centrifugal forces Ω^+ gives priority to the "equatorial" structural part of its surface in "swelling" from the "weakened" surfaces of its particles .

The result of this is the rupture of the structural "pole" layers of the surface Ω^+ , from the emerging increasing pressure with its subsequent release, and their place will be taken by subsequent structural layers Ω^+ ;

-a : modes a_c, comes to the equilibrium of surface pressure;

-b : now the next ones are newly formed, "pole" structural surface layers Ω^+ begin their priority "swelling" from the "weakened" surfaces of their particles.

As a result, the surface layer of the "equatorial" structural belt receives a rupture from the emerging increasing pressure, followed by its release, and subsequent structural layers Ω^+ come in their place .

In this mode, axial - "pole" pressures lead, according to the "gimlet" principle, to an additional axial displacement Ω^+ in the Star;

-b' : mode b comes to the equilibrium of surface pressure;

-a : as in the case b, but the newly formed "equatorial" surface layer of the structural belt Ω^+ will begin its priority "swelling" from the "weakened" surfaces of its particles .

As a result, the "pole" structural surface layers get a break from the emerging increasing pressure with its subsequent release, and their place will be taken by subsequent structural layers Ω^+ .

The passage of modes in Ω^+ causes the following changes on the star - the Sun:

1. In mode a_c, a from the action of the thermal direction of the separated "pole" layers Ω^+ on the same part of the surface of the Sun, the formations described above arise - two "pole" "coronary holes" and other types from $\{\{\check{S}\}\}; \{\{\check{L}\}\}$.

The Sun is experiencing a period of minimum activity. .

2. In mode b from the action of the thermal direction of the separated "belted" part of the "equatorial" layer Ω^+ on the same part of the surface of the Sun, the formations described above arise - already multiple "coronary holes". ” and other types from $\{\{\check{S}\}\}; \{\{\check{L}\}\}$.

In addition, the additional axial displacement Ω^+ in the star leads to a change in its magnetic field and a greater coverage of its surface by the manifested activity.

The Sun is experiencing a period of maximum activity.

A continuous, uniform alternation of the passage of modes a, b creates cycles of solar activity ~ 11 years.

The continuing activity of the core Ω^+ reduces its size along the radius.

At some point, the "power" of the ejection forces of its constructive outer surface will not be enough for the manifestation of the Star's activity on its surface.

In the star, internal “layered” activity will begin to occur, causing pressure there.

The star will begin to "swell" - expand, passing into the red giant phase.

At a certain stage, the initial parts of these layers will be shed and the Star will return to the initial phase of surface activity with the compaction of its remaining rarefied part.

And in the end the plasma envelope of the Star will be thrown off and only Ω^+ – “white dwarf” will remain .

This is where the substantiation of the properties of the Sun in terms of the stellar structure \check{z}^+ ends .

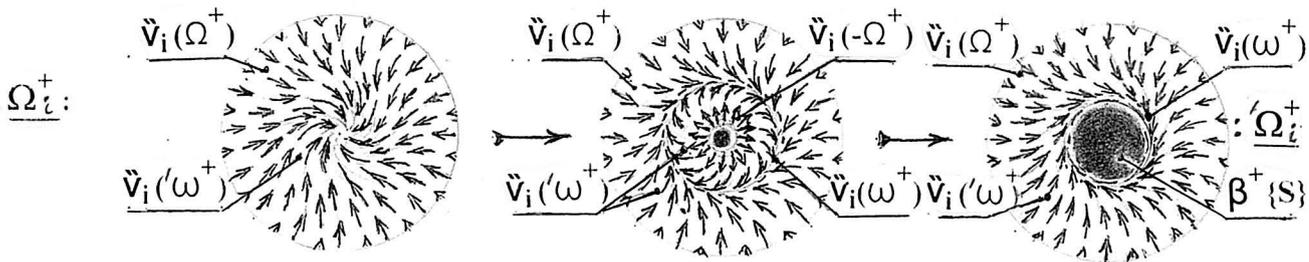
The activity of the nucleus Ω^+ from the \check{A} - reaction leads to a decrease in its radius with the preservation of the structure of the surface layers from the plasma of maximum deformation . This results in a greater "curvature" of its continued structure causing more internal pressure there.

As a result, its innermost structural plasma layers will pass to the form ω^+ with the directionality of the elements of L particles LAS inside the area.

The "cold" inner region filled with this will transfer the structural inner part of the nucleus into a symmetrical from the outer one, with the formation of the same \check{A} - reactions .

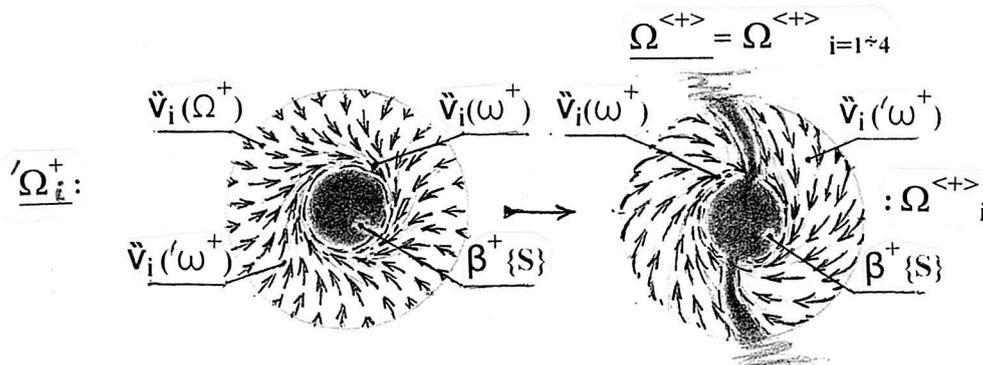
And since the passage of this reaction leads to an increase in the inner edge of the nucleus, the process of its maintenance from \check{L} } will "end" and its inner surface plasma layer will return to the form ω^+ .

The core of a star receives its "heart" from \check{S} } : area - $\beta^+ \{ \check{S} \}$:



The emerging internal pressure forms pole "holes" in the core of the Star , to "liberate" its "heart", after the end of its vigorous activity, which restrains this pressure from the surface of the maximum deformation plasma layers .

We get: $\Omega^{<+>}$ - " pulsar " , and from Ω^- it will be: $\Omega^{<->}$ - " black asset " :



It can be seen that the "pulsar" is smaller than the "white dwarf" in volume from an equal source of the "core".

And this means that the initial thickness of the plasma layer of their Star was different - more for the "pulsar" .

This means that the activity of the Star, from the side of the core of the future "pulsar", will begin not on its surface, but immediately on the lower inner layers, continuing to deepen with increasing pressure there.

As a result, there will be an “explosion” of the Supernova with the remnant of the future “**pulsar**” .

Note that these phenomena also contribute to the formation {LAS} from shock waves arising from them and the places of their formation .

In a large "Globule " may form more than one $\Omega^\pm : \{ \Omega^\pm \}$.

Their activity – reaction will proceed only on the outer side of the surface of their discrete association – an explanation will be given later.

And the “reactive” action from these reactions, with their dense plasma shell, provides them with a “dense” location – association .

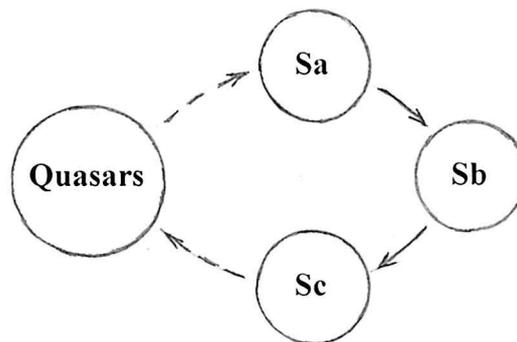
We get stars - Giants , and their evolution ends with "double" and "multiple" types of their nuclei with different types of their interaction.

Thus, all the Stars acquire a stable structure and an affirmative evolutionary path.

Now, on the basis of the above confirmations, we conclude about the structural patterns of \check{z}^+ and \check{z}^- all stars.

2.GALAXIES

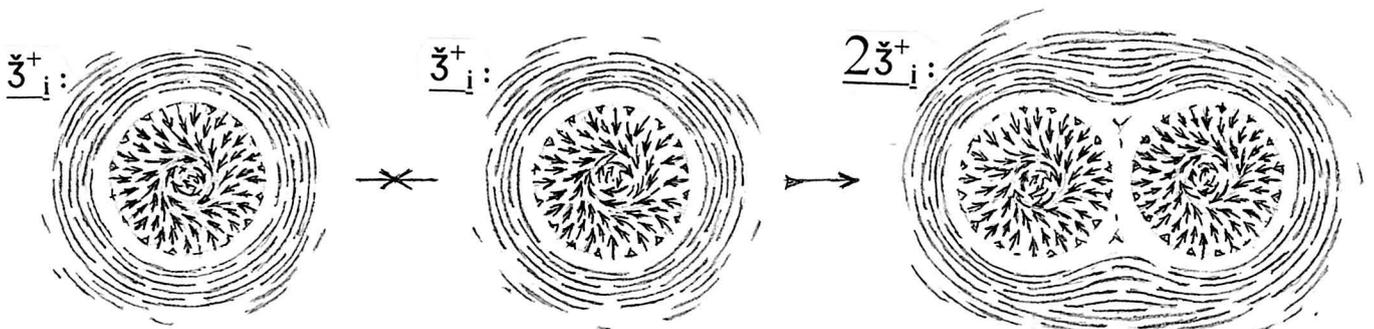
If we consider Quasars as a stage of the final-initial cycle of the evolution of Galaxies :
- on the example of **Sn** :



, then we can come to the conclusion that the center - the " **core** " of Galaxies consists of the final stage of the unification of their stars.

The limited union of these stars leads to the formation of giant stars :

- on the example of two stars of the form \check{z}^+ :



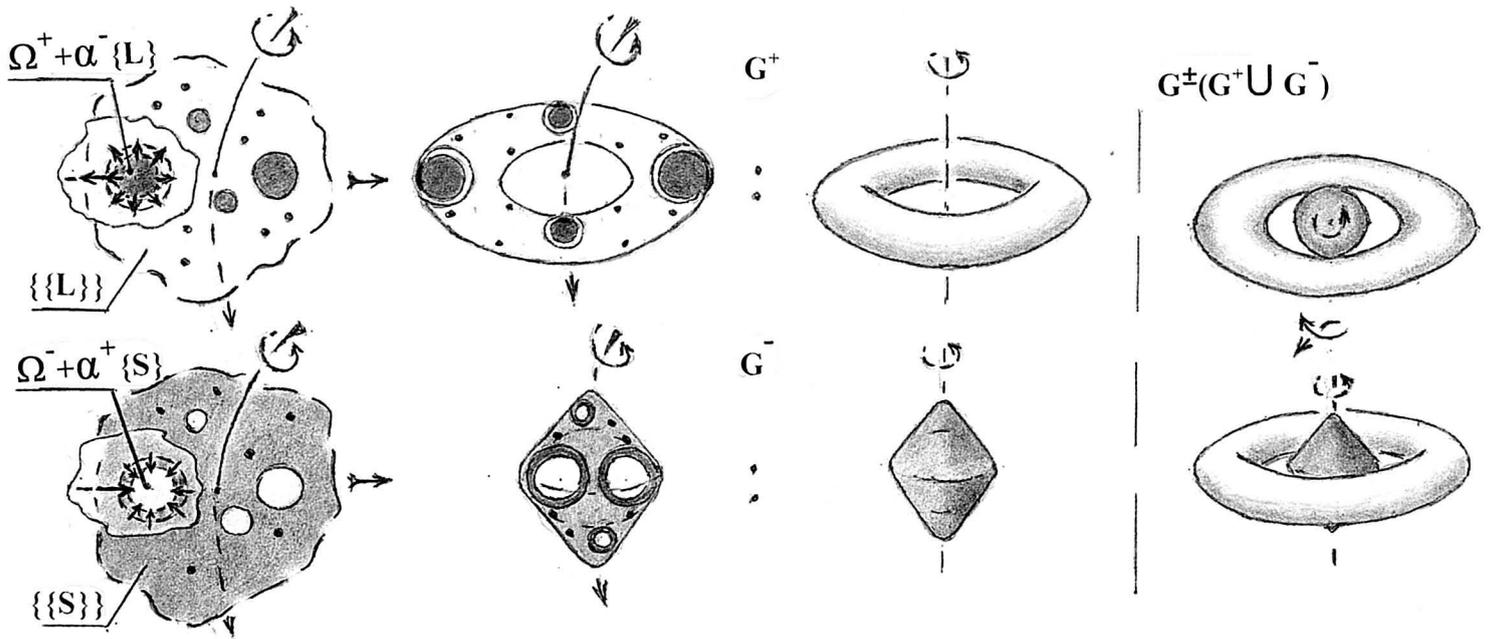
, with a “dense” arrangement of their core components $\{\Omega^+ + \alpha^- \{\check{L}\}\}$ or $\{\Omega^- + \alpha^+ \{\check{S}\}\}$, and a plasma shell resistant to them .

And their mass unification leads to the formation of "nuclei" of Galaxies :

$G^\pm (G^+ U G^-)$ or $G^\mp (G^- U G^+)$, with the structural unification of these groups :

$G^+ = \{\Omega^+ + \alpha^- \{\check{L}\}\} + \{\{\check{L}\}\}$ and $G^- = \{\Omega^- + \alpha^+ \{\check{S}\}\} + \{\{\check{S}\}\}$, already in their “weakened” unification in $+\{\{\check{L}\}\}$ or $+\{\{\check{S}\}\}$, with an unstable outer plasma shell – “cosmic dust”.

And if we take into account that the number of stars of the type \check{Z}^+ , in $S_n (G^\pm)$ is an order of magnitude greater than \check{Z}^- , then the G^+ formed by them will be larger, and therefore it will be located in the outer part of its structural association: $G^+ U G^-$:



The boundaries G^+ and G^- “cut off” the internal connections from $\{\Omega^+ + \alpha^- \{\check{L}\}\}$ and $\{\Omega^- + \alpha^+ \{\check{S}\}\}$ through $+\{\{\check{L}\}\}$ and $+\{\{\check{S}\}\}$, thereby transfer the manifestations of \check{A} – reactions only to these surfaces of their components Ω^+ and Ω^- .

And with their “reactive” action, they maintain the integrity of the structures G^+ and G^- .

And adjacent surfaces from $\{\Omega^+\}$ and $\{\Omega^-\}$ lose on themselves the actions (TE,TP) from their $\alpha^- \{\check{L}\}$ and $\alpha^+ \{\check{S}\}$ through $+\{\{\check{L}\}\}$ and $+\{\{\check{S}\}\}$, which entails the loss of the possibility of manifestation there \check{A} – reactions.

This brings them to the location at G^+ and G^- , giving them the images :

a) for G^+ :

$\{\Omega^+\}$ – mutually “diverge”, bringing the image G^+ to the form of a “stretched torus” with large $\{\Omega^+\}$ at its vertices .

And their boundary ejections $\{\check{S}\}$ create conditions for the formation of type stars \check{Z}^+ from the shock waves generated by them in areas that were "covered" by them from $\alpha^-\{\check{L}\}$ or $\{\{\check{L}\}\}$, and together with the “cosmic dust” create the “sleeves” of this Galaxy.

The same outliers from the activity of small $\{\Omega^+\}$, from other external boundaries G^+ , form a "disk" area in it .

From the inside of the G^+ , in the "hole" of the torus of its image, activity $\{\Omega^+\}$ forms a connection - a union with the structure G^- , from its outer boundary, with the completion $\{\{\check{S}\}\}$ of that area $\{\alpha^+\{\check{S}\} + \{\{\check{S}\}\}\}$.

This connection - the union finally forms **the core - $G^\pm (G^+ \cup G^-)$** , galaxies **S_n** .

b) for G^- :

$\{\Omega^-\}$ – mutually “concentrates”, resulting in an image G^- : from spherical with large ones $\{\Omega^-\}$ to its covered – “double cone” from the entire set $\{\Omega^-\}$ in continuation .

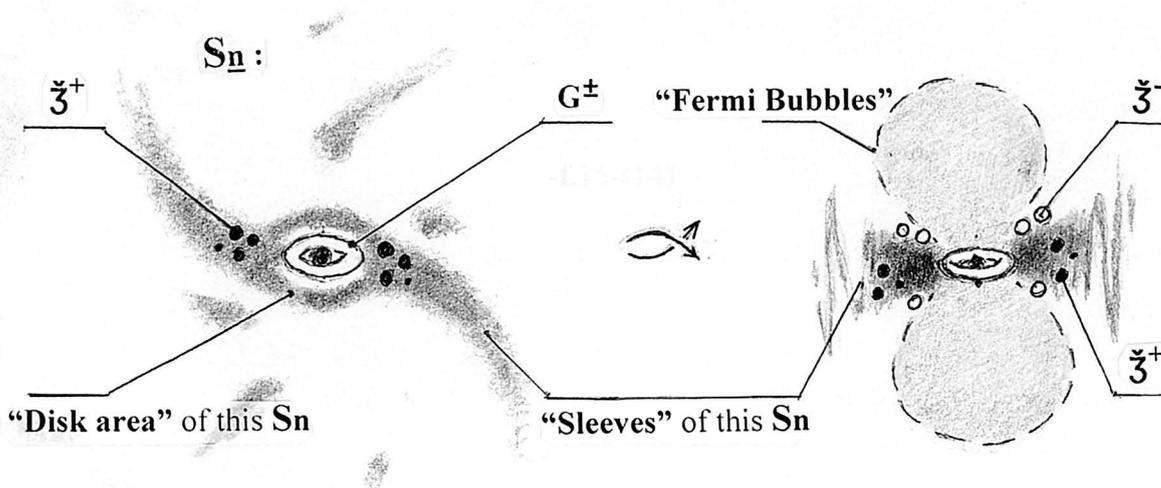
Connection - union G^- with G^+ occurs through its outer edge, to the inner edge of the united, and the subsequent replenishment $\{\{\check{L}\}\}$ of its area $\{\alpha^-\{\check{L}\} + \{\{\check{L}\}\}\}$ from the activity of their connecting elements .

And emissions $\{\check{L}\}$ from large $\{\Omega^-\}$, as a result of their activity, create conditions for the formation of stars of the type \check{Z}^- , at the edge of the outer polar regions **S_n** from the shock waves they generate in areas that were "covered" by them from $\alpha^+\{\check{S}\}$ or $\{\{\check{S}\}\}$.

The same emissions from the activity of small $\{\Omega^-\}$, from the remaining cone boundaries G^- , form " **Fermi bubbles** " .

All this determines the active activity of the center - the cores of Spiral galaxies **S_n** .

And their general appearance will look like this :



We come to the conclusion that the Galaxies themselves are the result of the vigorous activity of their center”- **Nuclei** .

After the active activity of the "nuclei" of Galaxies G^\pm and G^\mp all their stellar formation will begin to “concentrate” towards its center , eventually forming a Quasar, generating an active “**core**” , with an unstable plasma shell, of a new Galaxy.

At galaxies **Sn** "concentration" of stellar formation to its center will begin to flow, in priority, from the pole regions, forming the primary G^- and then surrounding to it - G^+ , eventually forming - $G^\pm (G^+ \cup G^-)$: “**core**” of the new Galaxy **Sn** .

CONCLUSION

From everything described, a picture of the evolutionary development of the entire structural “CHEMISTRY” is formed :

$$(L, S) \rightarrow LAS \rightarrow M(\{LAS\}) \ni (\Omega^+, \Omega^-) \rightarrow (\{\Omega^+\}, \{\Omega^-\}) \rightarrow M(\{\Omega^+\} \wedge \{\Omega^-\}) \ni \dots$$

, where fixed **M** defines a set element from its argument .

This work describes the second step in this sequence :

- the formation of primary components in the next stage of the entire evolutionary

CHEMISTRY”: $(\Omega^+, \Omega^-) \rightarrow (\check{\Omega}^+ \{\Omega^+\}, \check{\Omega}^- \{\Omega^-\})$;

- their multiple formations in the structural union : structural formation and single union from $G^+ \{\Omega^+\}$ and $G^- \{\Omega^-\}$: $G^\pm (G^+ \cup G^-)$, which are constituent elements of the set $M(\{\Omega^+\} \wedge \{\Omega^-\})$ in which, by analogy with the previous stage, there will be elements of the next stage of the entire evolutionary “CHEMISTRY” stage.

And to multiple unions from $\{G^+ \{\Omega^+\}\}$ and $\{G^- \{\Omega^-\}\}$ from $M(\{\Omega^+\} \wedge \{\Omega^-\})$ will refer to objects of enormous size: for example Giant Elliptical galaxies whose "stability" is not limited to the "core" of a single conjunction of G^+ and G^- .

And since the occurrence of these objects is rare, their more “powerful” representatives, giving an assortment to the described step from the set $M(\{\Omega^+\} \wedge \{\Omega^-\})$, will be even rarer and will be located multiple in the area beyond our possible review .

And the existence of the Overvoid Eridani , as a consequence of such formations, gives a possible confirmation of the existence of such object sizes.

It turns out that we are too "small" to survey the next step in the advancement of all evolutionary "CHEMISTRY".

And comparison with the quantitative scale of the components **LAS** in the Star confirms this, together with the “redshift” of all observed objects – the result of subsequent structure formation
