

CLUSTERS – PARTICLES BALANCE IN MATTER BY DYNAMIC FRACTALS

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Abstract. The aim of the paper is development of dynamic fractal concept which provides the possibility of study and elaboration of model of substances with small scale structures.

1. Introduction

Atoms and molecules as smallest blocks of the matter represents physical and chemical properties and then difference between materials, but not enough to explain all of their characters(fig.1). Matter structure also shows some properties like Ductility, Strength, Work Function and so on. Therefore, study more structure, more capabilities by aspects and applications.

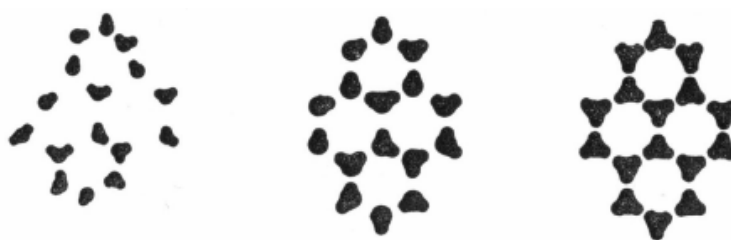


Fig.1. Liquid water and Ice structure

Solid state studies structure as Crystallization via stationary approach that disregards time effect on lattice to investigate it as stable structure [1]. However, Nano particle motion average conducts lattice study to stationary network, but particles motion is certainty [2].

On the other hand, there are two other well-known states as liquid and gas what represent semi approach but exaggerated what shows more time effect on position changing [3].

Meanwhile, random motion of molecules in liquid or gas and their collision also, is conducted to chaotic or non-regular motion that rise contradiction with lattice and its balance, because according to thermodynamics, entropy and then temperature rising is expected [4].

2. Results and Discussion

As well as, attempts to explain molecular motion in classical mechanics was unsuccessful that represents its disability and then contradictions go to Non-linear system (not Chaos) what observes balance concept but needs new approach to describe.

Generally, any approach represents particles momentum and Balance; what full feed by symmetric particle distribution in stationary approach, via dimensions investigation as space and time. New approach observes all of the concepts as rules, but in Non-linear system and then new mathematical approach is inevitable.

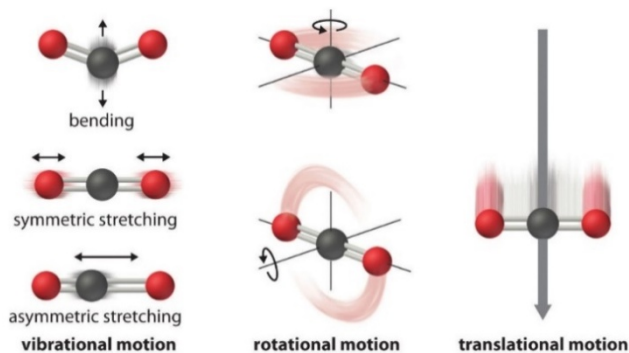


Fig.2. Nano Particle momentum possibilities

Up to now, particles are focused, but new approach consider space as clusters for particles motion as a serious part of momentum conversion study that goes to Balance target. Then, clusters as fractals (not fragment) in dynamic fractal concept defines Non-linear system reason at Nano scale (fig.2).

Also Balance seeking express unbalancing inside normally, what not only needs reason study but also finding a dynamic execution strategy that support all the above. In words, variable-function classic approach; $f(x) = y$, could not be acceptable and conducts study to Self-Control Closed Loop what describes momentum conversion repeatedly based on quantitated time to find dynamic Balance in Nano scale (fig.3).

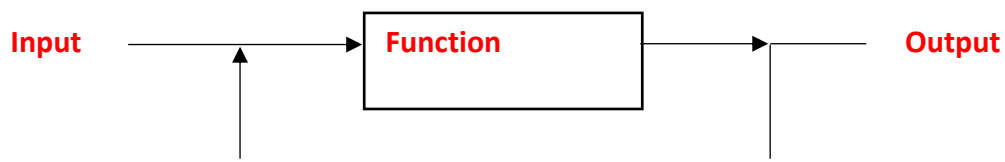


Fig.3. Self-Control Closed Loop

Conclusions

Therefore, Dynamic fractal concept not only provides more study of Nano Scale nature and then reasons explanation through rules observing, but also provides new way to find new and improved Nano Structure in many aspects as Energy, Semiconductors industries and so on.

References

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