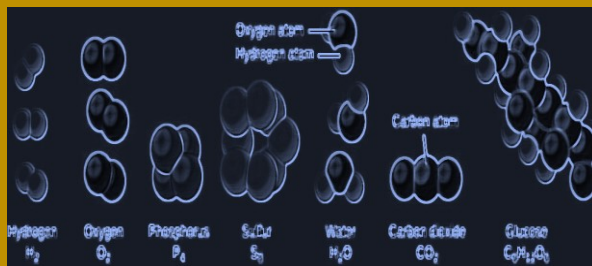


Countless Number of States of Matter

By: Korosh Erfani, PhD



March 2022

First Version



A production of Center for Research and Development of
Infinitylogy (CRDI)

Introduction:

By stating that ‘Everything is infinite’, [the theory of *Infinitism*](#) opens the way to suggest a variety of possibilities regarding the structure of universe and its substantial variation. The latter comes from an interaction between features that this theory attribute to matter. We remind the main characteristics of matter according to *Infinitism*:

1. Everything is made of an infinite number of components and their subcomponents.
2. The number of interrelations between these components and subcomponents is infinite.
3. The number of ways these interrelations are accomplished is infinite.

By mingling interactively and dynamically, these three characteristics provide different kinds of matter. We know four states of matter so far:

1. Solid
2. Liquid
3. Gas
4. Plasma

Infinetism pretends that thanks to the combination of the three above facts, all aspects and structures of matter might be countlessly altering, generating a high number of states; this can be infinite as well. The cases of “Bose-Einstein condensate” and “fermionic condensate” are examples of some possible alternative states of matter. Also the great scope of variation for each of these four states of matter shows that none of them is homogenously similar. For instance we know that “the main types of crystalline solids are ionic solids, metallic solids, covalent network solids, and molecular solids”.¹

¹ <https://opentextbc.ca/chemistry/chapter/10-5-the-solid-state-of-matter>

This means that not only do we have these four established states of matter, but we will also have the uncountable states that stem from their inner structural dissimilarity and the cross-combination of these known states and sub/semi states at infinite levels of fabric of matter.

Infinitist approach

Our hypothesis is that at different levels of the structure of matter we could have one of the limitless variations of these states. So, by taking these four ones as a base, we could have at least: $4!$ i.e. 24 combinatory states. Then we should know that in an infinite scope of layers and echelons of the fabric of matter these combinatory states could be mixed with each other and give us a $24!$ Possibilities: $24! =$

$$n! = 24!$$

$$= 6.204484017 \text{ E}+23$$

$$= 620448401733239439360000$$

This number gives us an idea on the states of matter we could have in the inner configuration of it. The number will increase when we multiply it by the diversity of the sub-states for each of these states as well.

One question is then raised in this regard: why we are just dealing with 4 states of that huge number?

We cannot yet deal with all countless states and sub-states of matter, in practice, since our mind is historically conditioned to see only the manifestations of these four states and a little number of their variety, and nothing beyond. The reason of this conditioning attitude is that these four states are immediately and easily accessible, observable, and tangible. Especially the three forms of solid, liquid and gas.

But in order to go out of the box, we need a theory and tools.

Dealing with uncountable number of states of matter

requires a comprehensive theory of matter that may not omit any possible configuration within the matter, nor any dynamism that is going on there. The methodological difficulty for such a theory is that it cannot be grounded on facts, which is notwithstanding the core principal of any 'scientific' approach. Hence the deadlock of science to see this huge number of the states of matter. That's why a *comprehensive theory of matter* could be, for now, a philosophical one, where we can conceptually browse broadly configurations and dynamisms within matter.

Infinitism wants to play the role of this all-inclusive theory of matter since it takes into account "existence", a notion that covers the matter in all its assortment of shape, substance, structure, and state. In this way, *Infinitism* asserts that we can have all these four established states and furthermore, all their known and yet unknown but highly

possible variations in every single material phenomenon if we look for.

By referring to these four established states of matter, here are the most general assertions that we can project in this field. For instance:

- In **Solid**, we have actual and active presence of liquid, gas, and plasma.
- In **Liquid**, we have actual and active presence of solid, gas, and plasma.
- In **Gas**, we have actual and active presence of solid, liquid, and plasma.
- In **Plasma**, we have actual and active presence of solid, liquid and gas.

With this basis, we can explore other assertions of *Infinitism* in which we describe the immeasurable complexity of structuration of matter. We already asserted that any component of matter is composed of infinite subcomponents

that are themselves constituted of a mixture of the above combinations. Therefore:

- There are infinite states of matter in its components and subcomponents.
- There are infinite interrelations between the states of matter among and within its components and subcomponents.
- There are infinite ways the states of matter among and within its components and subcomponents interact and interchange.

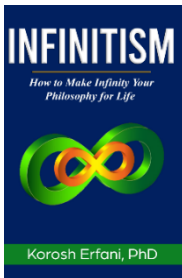
*

In brief, what we say here is that let's put no limit or bound when and where it comes to matter, since what we call as such is nothing else but *infinitude in action*. There is no any substantial genuineness in the matter. The latter is nothing but an infinite number of interactions between the infinites. So, setting any end or number to the variation of matter is

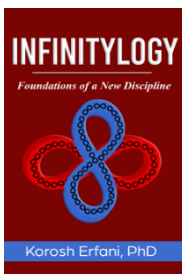
to say that infinite is finite, while the factuality shows that any finite is infinite. #

**

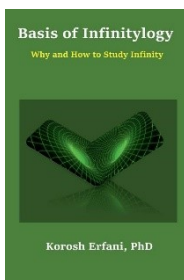
Books published so far:



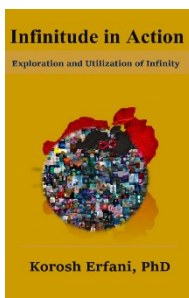
Infinitem: How to make Infinity your philosophy for life, ILCP Publishing House, 2021, 375 pages.



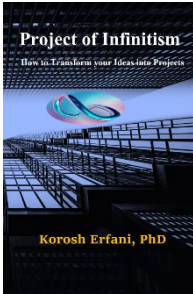
Infinitylogy: Foundations of a New Discipline, ILCP Publishing House, 2021, 148 pages.



Basis of Infinitylogy: How and why to study Infinity, ILCP Publishing House, 2021, 148 pages.

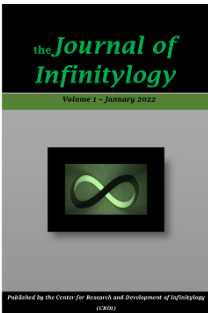


Infinitude in Action: Exploration and Utilization of Infinity, ILCP Publishing House, 2021, 200 pages.

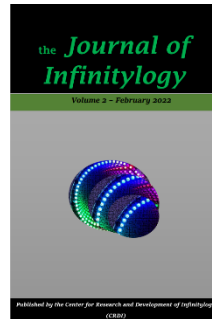


Project of Infnitism: How to Transform your Ideas into Projects, ILCP Publishing House, 2021, 132 pages.

The Journal of Infinitylogy



The Journal of Infinitylogy, Volume 1, January 2022, CRDI Publication



The Journal of Infinitylogy, Volume 2, February 2022, CRDI Publication

Our books in other languages



● **Infinitism: The Philosophical theory to change, (Book in Persian), ILCP Publishing House, 2020, 1018 pages. (possible translation in the future)**



- The CRDI plans translating these mentioned English books in French in the future.

[Our websites](#)



- Website on the *Center for Research and Development of Infinitylogy* (CRDI)

www.thecrdi.com

- Website on the philosophical theory of *Infinitem* and its applications.

www.infinitem.info

- Website on *Infinitylogy* as a new discipline and its establishment:

www.infinitylogy.com

- Website of the ILCP Publishing House

www.ilcpbook.com