

## **The effect of the plurality of patterns of interior space formation according to non-linear systems on interior design**

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### **Abstract:**

It has become one of the most important sources for the designer to resort to is the inspiration from the infinite cosmic motion, as the universe is more creative, free, self-regulating and open, as assumed by Newton, Darwin, and others - but modern science came to change the concept that the cosmic dynamic motion is in a linear form, rather it turned out that its motion is a dynamic, non-linear motion. In an irregular chaos, in essence, the top of the system. This continuous movement can be organized by an organic or mathematical system or by nonlinear systems.

Therefore, the importance of addressing nonlinearity as a prevalent system in the contemporary design process, and its impact on various fields of design, including architecture, interior design, furniture, complementary, fashion and shoe design.

And that is through monitoring the applications of design according to non-linearity to provide theoretical guidance for design according to those systems in the future.

Where the research seeks to explore its multiple patterns (of digital and non-digital origin), so that it is easy to follow by designers in general and interior designer in particular.

Hence the research came to solve the problem of scarcity and lack of research available to study nonlinear systems, the lack of a clear optimal methodology that can be followed to generate innovative ideas in the field of interior design.

With the aim of reaching an integrated system for the plurality of design patterns according to non-linear systems by devising innovative design alternatives in interior design.

### **Keywords:**

Non Linear System - Algorithm .Dynamics-. Self-Regulation- Folding -Chaos - Parametric - Topological Design -Metamorphic Shapes

### **An Introduction:**

Over the past 100 years, many designers have announced a new architecture based on the emergency conditions of life. But under the modernists, these statements became traditional because they led to the issuance of another system that illustrates a new idea.)

New science = new language = new metaphors.

So nonlinear architecture will flourish as a major movement in the current millennium as one of the new sciences of complexity.

Assuming that there is a new science and partial consensus on its value. The question then becomes:

Is this just a formality? Or just the use of computers in the design of curved buildings?

The impact of digital technologies on the design process has evolved so that it has been relied upon to coordinate between several data of the information provided to the program, which facilitates the creation of multiple solutions and alternatives that are differentiated between them, and the creation of complex dynamic formations using several techniques and programs that enable the designer to express his imagination. Nonlinear systems are nowadays the basic system for most designs in many fields. As these designs have become more complex, for this reason, research into the study of patterns of nonlinear systems has already moved from using them as a tool for analog simulation of nonlinear dynamic systems to using them as an essential component of design in various fields.

Therefore, in this research, nonlinear systems are addressed by monitoring their applications in various areas of design through a study of formation patterns according to nonlinear design.

#### Research Problem

- Is the nonlinear model consciously followed or not? To what extent do designers understand nonlinearity?
- How to apply non-linear systems with their different patterns to generate innovative ideas in the field of interior design?

#### Research Importance -

- The importance of success lies in shedding light on the importance of nonlinearity as a prevalent system in the contemporary design process.
- Providing theoretical guidance for non-linear design in the future, as the research seeks to explore its multiple patterns.

#### Research Objective

- Monitoring the multiple patterns of non-linear systems in my interior design.
- Access to an integrated system for the plurality of design patterns according to non-linear systems.

#### Research Hypothesis - -

- Moving towards non-linear design patterns according to a clear methodology that increases the designer's ability and awareness to generate innovative ideas in interior design, which enriches the design process.
- Nonlinear systems made it easier for the designer to design, test and evaluate a number of design alternatives to save time and effort.

#### Research Questions

Does design with nonlinear systems provide access to the best alternatives and solutions to enrich and keep pace with interior design?

- Are nonlinear systems more general and in tune with nature than linear systems?
- Is nonlinearity a singular or plural concept, evident through new patterns?

#### Research Limitation

- Objective limits: studying the patterns of non-linear systems and their capabilities in generating ideas.
- Time limits: a selection of models of interior design and furniture, starting from the third millennium.
- Spatial limits: an analytical study of global models.

#### Research Methodology

- The analytical descriptive approach, through the descriptive analytical study of some patterns of non-linear systems and clarifying their impact on interior design.

#### Search recommendations:

- The need to pay attention to the study of non-linear systems to enrich the design thought of the interior designer.
- Educational institutions should pay attention to studying digital technologies for their great impact on the production of multiple alternatives in interior design, such as RHINO GRASSHOPPER.
- Directing the interior designer to study the patterns of systems and methods of non-linear thought because of its profound impact on the design process.

#### Results:

- One of the most important features of design according to non-linearity is the development of dynamic surfaces so that they interact with the presence of the space occupant visually through the accumulation of visual effects realistically through the dynamics of materials.
- Non-linear systems support the creative thought of the interior designer, as they give him a tremendous ability to include new and multiple styles.
- Nonlinear systems depend on successive dynamic numerical equations and systems and give the ability to produce and generate non-presented ideas characterized by mutation and surprise.
- The shape generation system using algorithms helps to visually achieve dynamism in the design other than static, static shapes, balanced and fluid movement.

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