

Formative principles of Korean traditional costume(Hanbok) configuration and the fractal geometry

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## 1. Research Overview

The traditional costume of each country, which has been inherited in the long history of each nation, tends to reflect its unique life philosophy and way of thought formed in its individual living environment. Because the thought and philosophy of human being is closely related to the will of formative creation and the idea of the creator is reflected in the form of artifacts such as the clothes, the standpoint of thought of a nation can be construed through the observation of its dress structure. Therefore, it can be seen that Korean traditional costume is a reflection of the inner thought value of Korean nation.

This study is aimed to reveal whether there is any correlation between the formative principles of Korean traditional costume and the 20th-century scientific thought and the world view by conducting the comparative study on the specific nature found in the structural formative principles of Korean traditional costume from the aspect of the fractal geometry which has systematized the 20th century chaos theory to a geometric model.

## 2. The purpose of the study

First, it is to look into the concepts, the introduction backgrounds and the formative principles of the fractal geometry.

Second, we review the chronological change of the structure of Korean traditional dress while conducting the observation of the figurative characteristics presented in Korean dress structures separately focusing on its characteristics in its appearance and its structural characteristics. Thereafter we investigate the Korean formative environment and the formative creation spirit of Korean people.

Third, we examine therefrom the relationship between the formative principles of fractal geometry developed in the Western world and the formative principles presented in the configuration of Korean traditional costume.

### 3. The range and method of study

The scope of this study consists of the examination of the Korea traditional costume ranging from ancient times to Joseon Dynasty based on the literature and relics while we applied a combination of literature review and empirical research method in order to investigate about the relationship of aesthetic value of fractal geometry shown in the formative principles of the Korea traditional costume structures appeared through the ancient period, the Goryeo dynasty and Joseon Dynasty, based on the fractal theory, a new paradigm of science after 20th century.

### 4. Results

Results of the study are as follows.

1. The "fractal", called the geometry of chaos, stands for the structure translated by geometric theory from the self-similarity that indicates that the whole and the parts have similar shape and has a exceptional feature such as 'self-similarity', 'circularity' and 'repeatability'.
2. From ancient times, Korean traditional costume comprized 'jeogori' (jacket), 'baji' (pants), 'chima' (skirt), and 'durumagi' (coat) as its basic components. In its configuration, it presents formative characteristic of the self-similarity, repetition and overlapping as it develops to a combination of several squares through repetition and overlapping leading to building a large square so that the parts of it transform to the whole while the whole embraces the portions in this manner. In view of the 'Han (韓)', a Korean traditional idea, this is a formative perception that is derived from the ideological base that 'Han (韓)' stands for 'one as well as many' and Korean traditional dress has the structure, in which the whole embraces the parts and the parts build the whole, complying with a self-similarity which constitute the core component of the fractal geometry of the 20th century scientific theory of the West.
3. The formative features of Korean dress structure demonstrate the characteristics of fractal geometry such as a self-similarity, repeatability, and overlapping. In addition, it can be seen that the formative nature of the irregularities, the randomness and the variability that appear in Korean dress are also similar to the artifact formation principles of the fractal geometry characterized by the irregularities, the randomness, the modification and the distortion.

As said above, it is considered that the fractal theory which appeared in the 20th century as a new paradigm of modern science has revealed the similarity to Korea traditional thought 'Han(韓)' idea which has been inherited for thousands years.