Finding a Pure Mathematical Method for Galactic Classification

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Fractals are a group of figures that cannot be described by the Euclidian geometry but by their own methods because of the rare geometry of their never ending pattern. Fractals can be found in nature; for example, the coast of Britain ,as seen from space, is visibly irregular. Because of this characteristic, it cannot be described mathematically by Euclidian geometry but by Fractals, which explains its expanding and evolving symmetry. Throughout the study of fractal geometry, the fractal dimension is revealed. The fractal dimension of an Euclidian figure is an integer but the fractal dimension of a fractal figure is not an integer but a decimal number. It is hypothesized that a galaxy can be classified by its unique fractal characteristics because of its intrinsic irregularity. Working with the fractal dimensions of an astronomical object, a computer program is used to measure the fractal manifestation in it utilizing the formula N=N0f^d . With a picture of the Spiral galaxy, a computer program is used to measure the number of pixels that are giving off light in the coastline of that galaxy. When done, the natural logarithm is taken from the number of pixels that give off light in the coastline and the division factor, the dimensions of the picture. A graph is made with these measurements to measure the fractal dimension of the galaxy. The hypothesis was confirmed.

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