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Design of Fractal Optical Modulator

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Abstract

The twenty-sector optical modulator has been designed by using iterated function systems (IFSs) by IFS Construction Kit program.

الخلاصة

صُمم المضمن البصري ذو العشرين مقطعاً بإستعمال أنظمة الدالة التكرارية (IFSs) بوساطة برنامج IFS Construction Kit .

Introduction

Classical geometry defines basic shapes such as points, lines, and circles. Much of the universe around us can be explained and understood using those classical constructions. However, there are many objects in nature that cannot be represented with these simple shapes. For example, a mountain is not just a cone. There are smaller peaks and valleys of all sizes on the surface of the mountain that make it distinctly different from any simple shape. The shape of a mountain and other natural objects can be described through something called a fractal. A fractal is any object that exhibits self-similarity. Self-similarity means that any small part of the object always looks like a small copy of the whole object. The small peaks and valleys on the surface of a mountain, often look like small copies of the mountain itself [1].

There are two categories of fractals: The deterministic fractals, which are exact and repeatable structures and random fractals.

The common feature that all these structures possesses is that they do not occupy the entire underbedding space, but leave a large number of blanks. However, the amount and arrangement of occupied