

Characterization of fractal shapes for use as sunshades

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Fractals have been identified in the structure of trees and plants, suggesting their potential use in urban heat island control. Fractal figures have a variety of shapes and dimensions depending on the original figure and the method of generation and manipulation.

In this study, we aimed to clarify the properties of Sierpinski tetrahedrons with a focus on their use as sunshades.

Sierpinski tetrahedrons with shielding angles matching the solar radiation on the planned date of measurement were manufactured by 3D printing and characterized in terms of volume, density, surface area, thermal properties, reflectance, and shading rate. Measurements are still ongoing.

The results of the characterization will be reported and the potential use of fractal shapes as sunshades will be discussed.

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