

Is The Optical Image Of A Non-Lambertian Fractal Surface Fractal?

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**Geoscience and Remote Sensing Letters, IEEE; Publication Date: Oct. 2005; Vol:
2, Issue: 4**

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Summary

This letter generalizes Pentland's result about the fractal dimension of the optical image of rough natural surfaces, without imposing his requirement that the reflection is Lambertian. Instead, it is assumed that the reflectance coefficient is proportional to the focusing/defocusing due to local surface curvature. It will be proved for this case that the density distribution across the optical image inherits the fractal dimension of the mapped surface.

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