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The visualization of spherical patterns with symmetries of the wallpaper group. (English)
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Summary: By constructing invariant mappings associated with wallpaper groups, this paper presents a simple and efficient method to generate colorful wallpaper patterns. Although the constructed mappings have simple form and only two parameters, combined with the color scheme of orbit trap algorithm, such mappings can create a great variety of aesthetic wallpaper patterns. The resulting wallpaper patterns are further projected by central projection onto the sphere. This creates the interesting spherical patterns that possess infinite symmetries in a finite space.

MSC:
52C20 Tilings in 2 dimensions (aspects of discrete geometry)
51M20 Polyhedra and polytopes; regular figures, division of spaces
20B30 Symmetric groups
20H15 Other geometric groups, including crystallographic groups
68U05 Computer graphics; computational geometry (digital and algorithmic aspects)

Keywords:
colorful wallpaper patterns; spherical patterns; variant mappings; infinite symmetries

Full Text: DOI

References:


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