

1135-57-42

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(segerman@math.okstate.edu). *Using quaternions to colour the cells of a tiling of \mathbb{H}^3 .*

As part of a recent project to create a virtual reality experience of movement within \mathbb{H}^3 , we needed some form of decoration to put in the space, so that users would be able to see the effects of their movement. We chose to use the $\{4, 3, 6\}$ tiling of \mathbb{H}^3 by ideal cubes, with six cubes meeting around each edge. This works well, but if all cubes are rendered identically, it is difficult to keep track of movements in which the user moves through multiple cubes. I will describe how we used quaternions to produce an eight-colouring of the $\{4, 3, 6\}$ tiling, giving users an improved set of landmarks to track their movement. The colouring arises as a kind of branched cover over the $\{4, 3, 3\}$ tiling of S^3 . (Received June 29, 2017)