

Optimal ball and horoball packings generated by simply truncated Coxeter orthoschemes with parallel faces in hyperbolic n -space for $4 \leq n \leq 6$

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Abstract. After investigating the 3-dimensional case ([35]), we continue to address and close the problems of optimal ball and horoball packings in truncated Coxeter orthoschemes with parallel faces that exist in n -dimensional hyperbolic space \mathbb{H}^n up to $n = 6$. In this paper, we determine the optimal ball and horoball packing configurations and their densities for the aforementioned tilings in dimensions $4 \leq n \leq 6$, where the symmetries of the packings are derived from the considered Coxeter orthoscheme groups. Moreover, for each optimal horoball packing, we determine the parameter related to the corresponding Busemann function, which provides an isometry-invariant description of different optimal horoball packing configurations.

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