

Sphere decompositions of hypercubes*

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Abstract

For $d \equiv 1$ or $3 \pmod{6}$, the 2-skeleton of the d -dimensional hypercube is decomposed into the union of pairwise face-disjoint isomorphic 2-complexes, each a topological sphere. If $d = 5^n$, then such a decomposition can be achieved, but with non-isomorphic spheres.

Keywords: Face-disjoint union of spheres, combinatorial design, 2-skeleton of a cube.

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Razgradnja hiperkock na sfer*

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Povzetek

Za $d \equiv 1$ ali $3 \pmod{6}$ razgradimo 2-skelet d -dimenzionalne hiperkocke na unijo paroma izomorfnih 2-kompleksov z disjunktnimi lici, pri čemer je vsak od teh kompleksov topološka sfera. Če je $d = 5^n$, potem je takšna razgradnja sicer mogoča, vendar z neizomornimi sferami.

Ključne besede: Unija sfer z disjunktnimi lici, kombinatorično oblikovanje, 2-skelet kocke.

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