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Alternating links with totally geodesic checkerboard surfaces. (English) [Zbl 07444692]

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Summary: We prove that alternating links with two totally geodesic checkerboard surfaces are three links with projection the 1-skeleton of the octahedron, the cuboctahedron and the icosidodecahedron. Then we characterize these links as right-angled completely realizable links and show that all hyperbolic weaving knots with two exceptions have both checkerboard surfaces not totally geodesic.

MSC:

57K10 Knot theory
57M50 General geometric structures on low-dimensional manifolds

Keywords:

hyperbolic geometry; alternating link; totally geodesic surface; right-angled polyhedron

Full Text: DOI