

1052-05-248

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Edge-transitive tessellations with non-negative Euler characteristic.

Graver and Watkins classified edge-transitive maps on closed surfaces into fourteen types. In this note we study these types for 3-connected maps in surfaces of non-negative Euler characteristic, including the Euclidean and hyperbolic plane. We revisit both finite and infinite one-ended edge-transitive maps. For the finite ones we give precise description that enables us to enumerate them up to a given number of edges. The automorphism group of an edge-transitive map may have one, two, or four orbits when acting on the set of flags. Some more general questions concerning k -orbit maps will be discussed. (Received August 29, 2009)