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Tajovskeho 40, Banska Bystrica, Slovak Rep. *Vertex-transitive polyhedral maps and actions of  
discrete groups on surfaces.*

The classification of polyhedral vertex-transitive maps of fixed genus  $g$  reduces to the problem of classification of actions of discrete groups acting on the surface of genus  $g$ . These maps naturally generalise the spherical maps associated with the classical Archimedean solids. Therefore we call them Archimedean maps. The main idea is based on the fact that each Archimedean map on an orientable surface projects onto one- or two-vertex quotient map. For given genus  $g \geq 2$  the number of quotients to consider is bounded by a function of  $g$ . All Archimedean maps of genus  $g$  can be reconstructed from these quotients employing the technique of voltage graphs. A computer aided analysis allows us to produce catalogues of Archimedean maps of small genera. (Received September 13, 2011)