On flag transitive $c.c^*$-geometries admitting a duality

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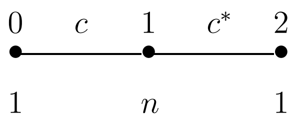
Abstract

We continue the classification of flag–transitive $c.c^*$–geometries (Γ, G) started in [Ba1, Ba2]. We consider those geometries which admit a duality. We show that, if Γ is not covered by a truncated Coxeter complex of type D_n and if the stabilizer of a point G_p has no regular normal subgroup, then (Γ, G) is one of 4 exceptional examples or the stabilizer G_p is a linear group $L_2(q)$, where $(q-1) \equiv 0(4)$ or $q = 2^r,\ r$ even or G_p is a unitary group. Moreover, we reduce the problem to determine the geometries with $G_p \cong U_3(q)$ to the problem to determine those with $G_p \cong L_2(q),\ q = p^r,\ r$ even. We apply our results to flag–transitive $C_2.c$–geometries having exactly two points on a line.

1 Introduction.

We follow [Bue2] for the terminology and notation of diagram geometry. A $c.c^*$-*geometry* is a geometry with diagram as follows:

$(c.c^*)$



where n is a positive integer, called the *order* of the geometry. The integers above the nodes are the types. As usual we also call the elements of type 0 points, those of type 1 lines and those of type 2 circles. We recall that the stroke

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