Abstract

A representation-theoretical characterization of Moore geometries

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Let S be a scheme of finite valency, let h and k be involutions of S generating S, and let us denote by $\mathcal{G}(S; \langle h\rangle, \langle k\rangle)$ the coset geometry of S with respect to $\langle h\rangle$ and $\langle k\rangle$ (in the sense of J. Tits).

Let us assume that the Bose-Mesner algebra over an algebraic closed field of characteristic 0 is generated (as an algebra) by the two adjacency endomorphisms defined by h and k. We shall see that then $\mathcal{G}(S; \langle h\rangle, \langle k\rangle)$ is a generalized polygon or a Moore geometry.

It seems to be a natural question to ask which geometries (except from finite buildings) does one obtain (as coset geometries) if one looks at schemes the Bose-Mesner algebra of which is generated by the adjacency endomorphisms of more than two involutions.