2-Dimensional affine apartment systems

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Abstract

(Joint work with Hendrik Van Maldeghem.) Affine apartment systems are non-discrete generalizations of affine buildings. Similarly to the discrete case there is a spherical building at infinity associated to an affine apartment system. A natural question is when a spherical building Λ can be realized as the building at infinity of an affine apartment system. If the dimension of Λ is at least 3, the Moufang property provides a list of possible buildings at infinity. In the dimension 2 case (generalized polygons) this approach no longer works. Our present research provides characterizations of the possible generalized polygons as building at infinity by using a valuation on the polygon.