

Beautiful subgeometries of beautiful geometries

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(Joint work with Paulien Jansen)

Abstract

In this talk I report on ongoing joint work with Paulien Jansen, in which we investigate the geometry of the inclusions $G_1 \leq G_2$ of Chevalley groups of the same rank, with G_2 of exceptional type. These are generically obtained by considering the residues of the extended Dynkin diagram of G_2 . Our project consists of finding ‘nice’ orbits of G_1 , in particular Grassmannians of the building $\Delta(G_2)$ corresponding to G_2 . I intend to present the nicest examples that emerged up to now. I also hope to mention two applications: one to *floor plans of buildings*, and one to the construction of *weak spherical buildings* having the same rank as their *thick frame*.

Keywords: Spherical Tits-buildings, Lie incidence geometries, Chevalley groups

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