On the Global Structure of Special Cycles on Unitary Shimura Varieties
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Abstract. In this paper, we study the reduced loci of special cycles on local models of the Shimura variety for GU(1, n − 1). Those special cycles are defined by Kudla and Rapoport. We explicitly compute the irreducible components of the reduced locus of a single special cycle, as well as of an arbitrary intersection of special cycles, and their intersection behaviour in terms of Bruhat–Tits theory. Furthermore, as an application of our results, we prove the connectedness of arbitrary intersections of special cycles, as conjectured by Kudla and Rapoport.