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The representative domain of a homogeneous bounded domain

Abstract. The representative domain introduced by S. Bergman gives a nice realization for a homogeneous bounded domain, which is a generalization of the Harish-Chandra realization for a symmetric bounded domain. We show that the representative domain coincides with the image of the Cayley transform introduced by R. Penney and T. Nomura. As an application, we see that a homogeneous bounded domain is symmetric if and only if its representative domain is convex.