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On Holomorphic Maps Induced from Measure-preserving Correspondences of Bounded Symmetric Domains

Let Ω be an irreducible bounded symmetric domain and $d\mu_\Omega$ be the canonical measure induced by the Bergman metric. Let Ω^p be a Cartesian product of Ω and $\pi_k : \Omega^p \longrightarrow \Omega$, $1 \leq k \leq p$ be the canonical projections. In relation to a problem in arithmetic geometry, Clozel and Ullmo were led to study measure-preserving correspondences of irreducible bounded quotients of Ω. Such a correspondence will induce a holomorphic map $f : \Omega \longrightarrow \Omega^p$ such that $f^*(\pi_1^* d\mu_\Omega + \cdots + \pi_p^* d\mu_\Omega) = q d\mu_\Omega$, where p, q are positive integers. In this talk, we will talk about the recent work (with N. Mok) about this kind of holomorphic maps. In particular, when $\dim(\Omega) = 1$, f is a holomorphic isometric embedding of the unit disk into the $p-$disk and we will also discuss some results on the classification problem of these isometric embeddings.