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**Alexandru Gabriel Atim\*** (atimg@gwm.sc.edu), USC Lancaster, P O Box 889, Lancaster, SC 29721, and **Robert R Kallman**. *The Projective Unitary Group is Algebraically Determined Polish group.*

Let  $G$  be a Polish group.  $G$  is said to be an algebraically determined Polish group if for any Polish group  $H$  and algebraic isomorphism  $\varphi : H \rightarrow G$  we have that  $\varphi$  is a topological isomorphism. Let  $H$  be a separable infinite dimensional complex Hilbert space. We will prove that the projective unitary group, the group of  $*$ -automorphisms of  $\mathcal{L}(\mathcal{H})$  and the complex isometry group of  $H$  are algebraically determined Polish groups. Similar results hold for their real Hilbert space analogues and for most (but not all) of the finite dimensional real and complex isometry groups. (Received September 16, 2008)