The Kulkarni limit set of complex hyperbolic groups

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Given a discrete subgroup Γ of $PU(1,n)$ it acts by isometries on the unit complex ball $\Bbb{H}^n_{\Bbb{C}}$, in this setting a lot of work has been done in order to understand the action of the group. However, when we look at the action of Γ on $ \Bbb{P}^n_{\Bbb{C}}$ little or nothing is known. In this talk, we describe the action in the whole projective space and we are able to show that the Kulkarni's discontuity set can be described as the complement of the union of all complex projective hyperplanes in $\Bbb{P}^n_{\Bbb{C}}$ which are tangent to $\partial \Bbb{H}^n_{\Bbb{C}}$ at points in the Chen-Greenberg limit set of Γ.