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The pluricomplex Poisson kernel in strongly pseudoconvex domains

The classical Poisson kernel in the unit disc is a harmonic function which allows, among other things, to reproduce (sub)harmonic functions continuous up to the boundary, to detect boundary behavior of holomorphic self-maps of the unit disc (via the so called Julia-Wolff-Carathodory theorem) and can be characterized as the maximum among all negative subharmonic functions which have a non-tangential pole at a given boundary point. In 2009, for smooth strongly convex domains with smooth boundary, the speaker together with G. Patrizio and S. Trapani defined a maximal psh function which shares the previous mentioned properties with the classical Poisson kernel (the smoothness assumption can be lower considerably due to a recent result of X. Huang and X. Wang). In this talk I will explain how to define such a function on strongly pseudoconvex domains, to get representation formulas and application to boundary behaviors of holomorphic maps. While in strongly convex domains the construction of the pluricomplex Poisson kernel is made via the Lempert's type boundary representation function due to Chang, Hu and Leea function which is not known to exist in strongly pseudoconvex domains—in strongly pseudoconvex domains the construction is based on a Phragmen-Lindelof type result, Jensen's measure and a construction, that we call entrapping strongly pseudoconvex domains between convex domains, that allows to have precise boundary estimates. The talk is based on a recent paper with A. Saracco and S. Trapani.