

A Julia-Wolff-Carathéodory Theorem in convex domains of finite type

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Abstract

The classical Julia-Wolff-Carathéodory shows that, if f is a holomorphic self-map of the disc, the derivative f' admits a positive nontangential limit near any boundary regular fixed point z , and the limit equals the dilation of f at z which can be computed in terms of the Poincaré distance. This result had several generalizations to several variables: in particular Rudin proved a version of it in the ball, Abate in strongly convex domains, and Abate-Tauraso in convex domains of D'Angelo finite type, adding a couple of technical assumptions. In this talk I will show how to prove the full theorem in the context of convex domains of D'Angelo finite type, using the strong asymptoticity of complex geodesics and the existence of horospheres. This result turns out to be related to the pluricomplex Poisson kernel introduced by Bracci-Patrizio-Trapani. This is a joint work with Matteo Fiacchi.