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Continuity of certain capacity-like quantities related to chordal Loewner chains

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Abstract

In several applications of Loewner chains, it is necessary to consider a class of conformal mappings with a common boundary fixed point. If we take the upper half-plane as our canonical space and the point at infinity as the fixed point, then a fundamental role is played by the angular residue at infinity of those conformal mappings. This residue is also called the half-plane capacity (of the corresponding boundary hulls). In this talk, on the basis of two of my (joint) works, I shall present some results on the continuity of this capacity-like quantity when the images of the conformal mappings vary continuously in the sense of Carathéodory. If time permits, I shall also discuss 1) what meaning these results have in a certain application of "chordal" Loewner chains; 2) how these results are established for conformal mappings on finitely connected domains.