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Loewner evolution of hedgehogs and 2-conformal measures of circle maps. (English)

Zbl 1477.37052


Summary: Let $f$ be a germ of a holomorphic diffeomorphism with an irrationally indifferent fixed point at the origin in $\mathbb{C}$ (i.e. $f(0) = 0$, $f'(0) = e^{2\pi i \alpha}$, $\alpha \in \mathbb{R} - \mathbb{Q}$). R. Pérez-Marco [Acta Math. 179, No. 2, 243–294 (1997; Zbl 0914.58027)] showed the existence of a unique continuous monotone one-parameter family of non-trivial invariant full continua containing the fixed point called Siegel compacta, and gave a correspondence between germs and families $(g_t)$ of circle maps obtained by conformally mapping the complement of these compacts to the complement of the unit disk. The family of circle maps $(g_t)$ is the orbit of a locally defined semigroup $(\Phi_t)$ on the space of analytic circle maps, which we show has a well-defined infinitesimal generator $X$. The explicit form of $X$ is obtained by using the Loewner equation associated to the family of hulls $(K_t)$. We show that the Loewner measures $(\mu_t)$ driving the equation are 2-conformal measures on the circle for the circle maps $(g_t)$.

MSC:

37E10 Dynamical systems involving maps of the circle
37B45 Continua theory in dynamics
54D30 Compactness

Keywords:

Loewner evolution; conformal measures; indifferent fixed points; circle maps

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References:


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