
Tobias Kaiser

**Asymptotic Behaviour of the Mapping Function
at an Analytic Cusp
with Small Perturbation of Angles**

CMFT 10 No.1 (2010), 35–47. [ISSN 1617-9447]

Abstract. We say that a simply connected domain in the complex plane has an analytic cusp at the origin if its boundary at the origin is given by two regular analytic curves which form a cusp. We investigate the asymptotic behaviour of a conformal map onto the upper half plane at the origin. Therefore we introduce the notion of an analytic cusp with small perturbation of angles. Assuming this condition we determine the asymptotic behaviour in terms of a holomorphic function and give upper bounds for the derivatives of the mapping function.

Keywords. Riemann Mapping Theorem, asymptotic behaviour, analytic cusp.

2000 MSC. 30C20, 30E15, 14P15.

Received. July 23, 2008, in revised form February 4, 2009, and May 26, 2009.

Published online. September 9, 2009.