INSALATE DI MATEMATICA

presents

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The Modulus of a curve family

Abstract:

Let's try to set up a geometric problem in the Euclidean plane: consider a square $Q = (0,1) \times (0,1)$ and a rectangle $R_{a,b} = (0,a) \times (0,b)$. The Riemann mapping theorem guarantees that Q and $R_{a,b}$ are conformally equivalent. Any conformal homeomorphism between the square and the rectangle extends homeomorphically to the boundary. One might ask whether it is possible to do this in such a way that the horizontal edges of Q are mapped to the corresponding horizontal edges of $R_{a,b}$, and analogously for the vertical edges of the rectangles.
In order to answer such questions we shall introduce the Modulus of a curve family.
This tool has been relevant for the notion of quasiconformal maps and related theory.

Keywords: conformal geometry · modulus of a curve family · quasiconformal maps

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"Obvious" is the most dangerous word in mathematics.
(Eric Temple Bell)