

What is the Grunsky operator?

Eric Schippers

University of Manitoba, Winnipeg, MB, Canada

Abstract

The Grunsky operator is a matrix associated to a conformal map of the disk into the plane, which under analytic conditions on the mapping can be treated as a bounded operator. It arises in many contexts classically, for example potential theory and extremal problems for univalent functions. It has many (roughly) equivalent formulations, but its interpretation is not altogether obvious.

The Grunsky operator surfaces in some surprising places, such as Teichmüller theory, representation theory, and conformal field theory. I will give an exposition of some of the literature on the Grunsky operator up to the present, and illustrate its geometric meaning.