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**TED SUFFRIDGE**, Department of Mathematics, University of Kentucky, Lexington, KY 40506

*Invariant mappings on the ball and extremal problems*

The concept of “linear invariant family” was introduced by Pommerenke in his 1964 paper in *Mathematische Annalen*. A family  $\mathcal{F}$  of functions that are analytic on the unit disk and normalized by  $f(0) = 0$ ,  $f'(0) = 1$  with  $f'(z) \neq 0$  when  $|z| < 1$  is linear invariant provided that the function  $K_\varphi f \in \mathcal{F}$  whenever  $f \in \mathcal{F}$ . Here,  $\varphi$  is a holomorphic automorphism of the unit disk, and  $K_\varphi f$  is obtained by forming the composition  $f \circ \varphi$  and normalizing the result. The functions that have the property  $K_\varphi f = f$  for certain automorphisms  $\varphi$  are of particular interest and in fact the solution of many extremal problems on a family  $\mathcal{F}$  is one of these “invariant” functions. We discuss the extension of these ideas to mappings  $f: B \rightarrow \mathbb{C}^n$ , where  $B$  is the Euclidean ball in  $\mathbb{C}^n$ , and in fact characterize the invariant mappings for given linear invariant families of mappings, in a theorem that gives a procedure for constructing all such mappings.

This is joint work with J. A. Pfaltzgraff.