1077-32-439 **Robert A Bridges*** (`bridges@purdue.edu`). *Schroeder's Equation in Several Variables.*

If $\phi : \mathbb{D} \to \mathbb{D}$ is analytic fixing 0, Schroeder's equation asks one to find an analytic f and $c \in \mathbb{C}$ satisfying

$$f \circ \phi = cf.$$

In 1884 Koenigs showed that there is such an f, which is bijective near 0, if and only if $c = \phi'(0) \neq 0$. If C_ϕ is the composition operator sending g, a function defined on $\mathbb{D}$, to $g \circ \phi$, Koenig's solution gives an eigenvector & value of C_ϕ. Additionally, it is a first step in understanding intertwining maps and models of iteration which have been a fruitful approach for composition operators.

The overall goal is to find such a model for iteration with domain $\mathbb{B}^n$.

In 2003 Cowen and MacCluer formulated a several variables Schroeder's equation. Let $\mathbb{B}^n$ be the unit ball in $\mathbb{C}^n$, and $\phi : \mathbb{B}^n \to \mathbb{B}^n$ analytic, fixing 0, $\phi'(0)$ full rank, and $|\phi(z)| < |z|, z \neq 0$. Does there exist an analytic $F : \mathbb{B}^n \to \mathbb{C}^n$ so that

$$F \circ \phi = \phi'(0)F?$$

This talk will give necessary and sufficient conditions for a solution. (Received September 01, 2011)