Meeting: 1006, Lubbock, Texas, SS 5A, Special Session on Recent Advances in Complex Function Theory

1006-32-166 **Ian Graham**, Toronto, Canada, **Gabriela Kohr**, Cluj, Romania, and **John Pfaltzgraff*** (jap@email.unc.edu), Mathematics Department, CB 3250, University of North Carolina, Chapel Hill, NC 27599 3250. *Parametric representation and linear functionals associated with extension operators for biholomorphic mappings.*

Suffridge and the speaker defined, (1999), an extension operator T that extends $f = (f_1, ..., f_n)$, $f(0) = 0$, $Df(0) = I$, a locally biholomorphic mapping of the complex n-ball, $B(n)$, to a locally biholomorphic mapping $F = Tf$ of the $(n+1)$-ball into complex $(n+1)$ space. In the present joint work with Ian Graham and Gabriela Kohr new properties of the T operator are obtained. In particular it is shown that:

(i) If f maps $B(n)$ onto a starlike domain then F is starlike on $B(n+1)$, T preserves starlikeness.

(ii) If f can be imbedded, $f(z) = f(z, 0)$, in a Loewner chain $f(z, t)$, $t >$ or $= 0$, on $B(n)$, then F has the same property on $B(n+1)$, T preserves parametric representation.

We have been unable to establish that T preserves convexity, but we have some partial results in this direction. Although the T operator coincides with the Roper-Suffridge operator for extensions from the unit disk, $B(1)$, to $B(k)$, it has the advantage of giving extensions from $B(n)$, $n > 1$, where the R-S operator is not defined.

We also investigate problems related to extreme points and support points for biholomorphic mappings generated by using the Roper-Suffridge operator. (Received February 14, 2005)