1086-60-1671 **M. M. Rao** (rao@math.ucr.edu) and **Bertram M. Schreiber*** (bert@math.wayne.edu).
*Representation of $K$-Isotropic Harmonizable Random Fields and Completely Bounded Multilinear Forms.*

Let $K$ be a compact group acting as a transformation group via automorphisms on the locally compact group $G$. Then $K$ acts in the canonical way on unitary representations of $G$, and thus on both $C^*(G)$ and its dual, $B(G)$. More generally, if we let $K$ act diagonally on $G \times \cdots \times G$, then this induces an action of $K$ on the Haagerup tensor product $C^*(G) \otimes_h \cdots \otimes_h C^*(G)$ and its dual space. A functional $u$ in this dual space is called $K$-*isotropic* if $u^\kappa = u \; \forall \; \kappa \in K$, where $u^\kappa$ denotes the image of $u$ under the action of $\kappa$. When $u$ is completely positive, a representation of the Fourier transform of $u$, as a function on $G \times \cdots \times G$, can be formulated in terms of $K$-spherical functions on $G$. When $K = SO(d)$, and $K$ acts on $\mathbb{R}^d \times \mathbb{R}^d$, this leads to a representation theorem for isotropic, weakly harmonizable processes. (Received September 24, 2012)