1035-47-1865   **Roger A. Roybal*** (`roger.roybal@csuci.edu`), Department of Mathematics, California State University Channel Islands, One University Drive, Camarillo, CA 93012. *The multidimensional moment problem and reproducing kernels.*

Given a multisequence $\{s_\alpha\}_{\alpha \in \mathbb{N}_0^d}$, the multidimensional Hamburger moment problem asks of the existence and uniqueness of a representing measure $\mu \geq 0$ on $\mathbb{R}^d$ so that $\int x^\alpha \, d\mu = s_\alpha$ for each α. In the classical $d = 1$ case, indeterminacy of the solution occurs exactly when a reproducing kernel exists on $\mathbb{C}$ for the closure of the polynomials in $L^2(\mu)$ for any solution μ. We discuss how this result does not translate to $d > 1$ and give some conditions where the existence of a reproducing kernel implies indeterminacy. (Received September 20, 2007)

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