962-43-841 **Fulton B. Gonzalez*** (`fulton.gonzalez@tufts.edu`), Department of Mathematics, Tufts University, Medford, MA 02155. *Multitemporal Wave Equations on Compact Symmetric Spaces.* Preliminary report.

Let $X = U/K$ be a compact semisimple symmetric space, let $\mathbb{D}(X)$ denote the algebra of left U-invariant differential operators on X, and let $\Gamma : \mathbb{D}(X) \to \mathbb{D}_W(\mathfrak{a}_*)$ be the Harish-Chandra isomorphism. We investigate solutions to the system of multitemporal wave equations

$$D_x\, u(x, H) \;=\; \gamma(D)_H\, u(x, H) \qquad\qquad D \in \mathbb{D}(X) \qquad\qquad (1)$$

$$\partial(p_i)_H\, u(x, 0) \;=\; f_i(x) \qquad\qquad i = 1, \ldots, |W| \qquad\qquad (2)$$

where $\{p_i(H)\}_{i=1}^{|W|}$ is a basis of the vector space of W-harmonic polynomials on $\mathfrak{a}_*$. This system has been studied for noncompact X by Shashahani, Lax, Semenov-Tian-Shansky, Helgason, and others. We obtain explicit solutions to this system and discuss some properties of the solutions. (Received September 28, 2000)