1037-22-181 **Markus Hunziker*** (Markus_Hunziker@baylor.edu), **Mark R. Sepanski** (Mark_Sepanski@baylor.edu) and **Ronald J. Stanke** (Ronald_Stanke@baylor.edu). *Conformal symmetries of the wave equation and representation theory, II.* Preliminary report.

In the talk by Mark Sepanski, a unitary lowest weight representation $\mathcal{H}^+$ and a unitary highest weight representation $\mathcal{H}^-$ of a double cover of the conformal group $SO(2, n+1)_0$ were constructed for every $n \geq 2$ such that the smooth vectors in $\mathcal{H}^+$ and $\mathcal{H}^-$ consist of complex-valued solutions to the wave equation $\Box f = 0$ on Minkowski space $\mathbb{R}^{1,n} = \mathbb{R} \times \mathbb{R}^n$ and the invariant product is the usual Klein-Gordon product. In this talk we give explicit orthonormal bases for the spaces $\mathcal{H}^+$ and $\mathcal{H}^-$ consisting of weight vectors; when n is odd, our bases consist of rational functions. Furthermore, we show that for every real-valued smooth solution $u(t, x)$ to the wave equation satisfying the certain decay conditions there is a unique real-valued smooth solution $v(t, x)$ to the wave equation such that $u + iv \in \mathcal{H}^+$ and $u - iv \in \mathcal{H}^-$. (Received February 01, 2008)