1037-22-179 **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, I.* Preliminary report.

Using an idea of Dirac, we give a geometric construction of a unitary lowest weight representation $\mathcal{H}^+$ and a unitary highest weight representation $\mathcal{H}^-$ of a double cover of the conformal group $SO(2, n+1)_0$ for every $n \geq 2$. 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. (Received February 01, 2008)