1046-11-501   **Sander Zwegers*** (`sander.zwegers@ucd.ie`), School of Mathematical Sciences, University College Dublin, Belfield, Dublin 4, Ireland. *Indefinite Theta Functions.*

One of the very few known general constructions of holomorphic modular forms is via theta series: if Q is a positive definite integer-valued quadratic form on a lattice L of rank n, then the associated theta function is a modular form of weight $n/2$. We wish to generalize this result to the case when Q is allowed to be indefinite. For quadratic forms of type $(n-1, 1)$, we can define suitable theta functions, which are, in general mock modular forms. In certain special cases we get holomorphic modular forms. In this talk we'll describe general results in both directions. We'll also consider quadratic forms of more general type. This, however, is work in progress. (Received September 05, 2008)