

1102-11-179

Scott Ahlgren* (sahlgren@illinois.edu), Department of Mathematics, 1409 W. Green St, Urbana, IL 61801, and **Nickolas Andersen** (nandrsn4@illinois.edu), Department of Mathematics, 1409 W. Green St., Urbana, IL 61801. *Weak harmonic Maass forms of weight 5/2.*

We construct a natural basis for the space of weak harmonic Maass forms of weight $5/2$ on the full modular group. The non-holomorphic part of the first element of this basis encodes the values of the ordinary partition function $p(n)$. We obtain a formula for the coefficients of the mock modular forms of weight $5/2$ in terms of regularized inner products of weakly holomorphic modular forms of weight $-1/2$, and we obtain Hecke-type relations among these mock modular forms. (Received July 28, 2014)