1067-05-227 **Elizabeth M Niese*** (eniese@vt.edu), 460 McBryde Hall, Blacksburg, VA 24060, and **Nicholas Loehr** (nloehr@vt.edu). *Divisibility properties and recursions for the Hilbert series of Macdonald polynomials.*

In this presentation we look at $\widetilde{F}_\mu(q,t)$, the Hilbert series of Macdonald polynomials. We use the combinatorial definition of $\widetilde{F}_\mu$ to prove that $\widetilde{F}_\mu$ is divisible by certain factors. To prove this bijectively we introduce a recursion for two-column shapes along with several combinatorial operations on the fillings which generate $\widetilde{F}_\mu$. This recursion also leads to a fermionic formula which expresses $\widetilde{F}_{(2^n)}(q,t)$ as a sum indexed by perfect matchings. (Received August 10, 2010)