1097-47-236 **Shuaibing Luo** and **Stefan Richter*** (richter@math.utk.edu), Department of Mathematics, University of Tennessee, Knoxville, TN 37996. *Hankel operators on the Dirichlet space.* Preliminary report.

Let D denote the Dirichlet space of analytic functions f on the open unit disc $\mathbb{D}$ such that f' is square integrable over $\mathbb{D}$, and let S denote the Dirichlet shift, i.e. the operator defined on D by $Sf(z) = zf(z)$. An operator $A \in \mathcal{B}(D)$ is called a Hankel operator, if $AS = S^*A$. It is clear that the null space of a Hankel operator is invariant for S and the closure of its range is invariant for S^*.

We show that one recovers all invariant subspaces of S and S^* this way. This fact motivates the proof of the following analogue of a Bergman space result of Shimorin's: If for $n = 1, 2, ...$ $\mathcal{M}_n$ and $\mathcal{M}$ are non-zero S-invariant subspaces with projections P_n and P and extremal functions φ_n and φ, then $P_n \to P$ in the weak operator topology, if and only if $\varphi_n \to \varphi$ locally uniformly in $\mathbb{D}$. (Received January 23, 2014)