1138-47-254 **A. Aleman**, **M. Hartz**, **John McCarthy** and **S. Richter*** (srichter@utk.edu). *Weak products of complete Pick spaces.* Preliminary report.

Let $\mathcal{H}$ be the Drury-Arveson or Dirichlet space of the unit ball of $\mathbb{C}^d$. The weak product $\mathcal{H} \odot \mathcal{H}$ of $\mathcal{H}$ is the collection of all functions h that can be written as $h = \sum_{n=1}^{\infty} f_n g_n$, where $\sum_{n=1}^{\infty} \|f_n\| \|g_n\| < \infty$. We show that $\mathcal{H} \odot \mathcal{H}$ is contained in the Smirnov class of $\mathcal{H}$, i.e. every function in $\mathcal{H} \odot \mathcal{H}$ is a quotient of two multipliers of $\mathcal{H}$, where the function in the denominator can be chosen to be cyclic in $\mathcal{H}$. Furthermore, the maps $\eta : \mathcal{M} \to \mathcal{H} \cap \mathcal{M}$ and $\tau : \mathcal{N} \to Mult(\mathcal{H}) \cap \mathcal{N}$ establish 1-1 and onto correspondences between the multiplier invariant subspaces of $\mathcal{H} \odot \mathcal{H}$ and of $\mathcal{H}$, and the weak*closed ideals of the multipliers $Mult(\mathcal{H})$.

The results hold for many weighted Besov spaces $\mathcal{H}$ in the unit ball of $\mathbb{C}^d$ provided the reproducing kernel has the complete Pick property. (Received February 11, 2018)