1163-46-865 **Raul E Curto*** (`raul-curto@uiowa.edu`), Dept. of Mathematics, University of Iowa, Iowa City, IA 52242, and **In Sung Hwang** and **Woo Young Lee**. *The Beurling-Lax-Halmos Theorem for Infinite Multiplicity.*

We consider several questions emerging from the Beurling-Lax-Halmos Theorem, which characterizes the shift-invariant subspaces of vector-valued Hardy spaces. The Beurling-Lax-Halmos Theorem states that a backward shift-invariant subspace is a model space $\mathcal{H}(\Delta) \equiv H^2_E \ominus \Delta H^2_E$, for some inner function Δ. Our first question calls for a description of the set F in H^2_E such that $\mathcal{H}(\Delta) = E^*_F$, where E^*_F denotes the smallest backward shift-invariant subspace containing the set F. This is related to a canonical decomposition of operator-valued strong L^2-functions.

Next, we ask: Is every shift-invariant subspace the kernel of a (possibly unbounded) Hankel operator? We study a new notion of "Beurling degree" for an inner function, and establish a deep connection between the spectral multiplicity of the model operator (the truncated backward shift) and the Beurling degree of the corresponding characteristic function. We also consider the notion of meromorphic pseudo-continuations of bounded type for operator-valued functions, and use this notion to study the spectral multiplicity of model operators between separable complex Hilbert spaces. In particular, we consider the multiplicity-free case. (Received September 13, 2020)