Weighted Fréchet and (LB)-spaces of holomorphic functions

Abstract. The first part of this thesis deals with weighted Fréchet spaces of holomorphic functions $HW(G)$ resp. $HW_0(G)$, i.e. for an increasing sequence $W = (w_n)_{n\in\mathbb{N}}$ of strictly positive continuous functions (weights) on an open subset G of $\mathbb{C}^N$ we consider the projective limit of the Banach spaces $Hw_n(G) := \{f \in H(G); \|f\|_n := \sup_{z\in G} w_n(z)|f(z)| < \infty\}$ resp. $H(w_n)_0(G) := \{f \in H(G); w_n f$ vanishes at ∞ on $G\}$. Under rather general assumptions we give a characterization of the properties Schwartz, Montel and reflexive. Using the class $\mathcal{W}$ of weights on the unit disk which was introduced by Bierstedt and Bonet we get a necessary and sufficient condition for quasinormable and the density condition.
In the second part, for a decreasing sequence $\mathcal{V} = (v_n)_{n\in\mathbb{N}}$ of weights on G we consider the inductive limits $\mathcal{V}H(G)$ resp. $\mathcal{V}_0H(G)$ of the Banach spaces $Hv_n(G)$ resp. $H(v_n)_0(G)$. An application of class $\mathcal{W}$ yields a characterization of the dual density conditions. Moreover we study the connection between $\mathcal{V}H(\mathbb{D})$ resp. $\mathcal{V}_0H(\mathbb{D})$ having the dual density condition and projective description.