Meeting: 1002, Pittsburgh, Pennsylvania, SS 10A, Special Session on Trends in Operator Theory and Banach Spaces

1002-46-142 **Nigel J Kalton** and **Anna H Kamińska*** (kaminska@memphis.edu), The University of Memphis, Department of Math Sciences, Memphis, TN 38152. *Type and order convexity of Marcinkiewicz and Lorentz spaces and applications.*

We consider order and type properties of Marcinkiewicz and Lorentz function spaces. We show that if $0 < p < 1$, a p-normable quasi-Banach space is natural (i.e. embeds into a q-convex quasi-Banach lattice for some $q > 0$) if and only if it is finitely representable in the space $L_{p,\infty}$. We also show in particular that the weak Lorentz space $L_{1,\infty}$ do not have type 1, while a non-normable Lorentz space $L_{1,p}$ has type 1. We present also criteria for upper r-estimate and r-convexity of Marcinkiewicz spaces. (Received September 12, 2004)