# Unbounded Norm Topology in Banach Lattices

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## Abstract

A net $(x_\alpha)$ in a Banach lattice $X$ is said to be **unbounded norm convergent** or **un-convergent** to $x$ if $\big\|\,|x_\alpha - x| \wedge u\,\big\| \to 0$ for all $0 \leq u \in X$. In this talk, we investigate **unbounded norm topology** or **un-topology**, i.e., the topology that corresponds to $un$-convergence. We will see that $un$-topology agrees with the norm topology iff $X$ has a strong unit. $Un$-topology is metrizable iff $X$ has a quasi-interior point. An order continuous Banach lattice $X$ is a KB-space iff its closed unit ball $B_X$ is $un$-complete. At the end we discuss some relations between $un$-compact and sequentially $un$-compact subsets of a Banach lattice.

**Keywords.** Banach lattice, $un$-convergence, $un$-topology.