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Tom Richmond* (tom.richmond@wku.edu). *Complementation in the Lattice of Locally Convex Topologies.*

We find all locally convex homogeneous topologies on (\mathbb{R}, \leq) and determine which of these have locally convex complements. Among the locally convex topologies on a n -point totally ordered set, each has a locally convex complement, and at least n of them have 2^{n-1} locally convex complements. For any infinite cardinal κ , totally ordered spaces of cardinality κ which have exactly 1, exactly κ , and exactly 2^κ locally convex complements are exhibited. (Received January 18, 2011)