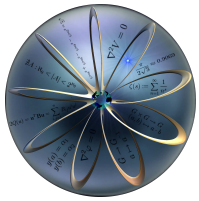

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Tychonoff fixed point theorem

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Let X be a locally convex topological vector space, and let $K \subset X$ be a non-empty, compact, and convex set. Then given any continuous mapping $f\colon K \to K$ there exists $x \in K$ such that $f(x) = x$.

Notice that a normed vector space is a locally convex topological vector space so this theorem extends the Schauder fixed point theorem.

References

[1] Rudin, *Functional Analysis*, Chapter 5.