

# Continuity of the cone spectral radius

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This paper concerns the question whether the cone spectral radius of a continuous compact order-preserving homogenous map on a closed cone in Banach space depends continuously on the map. Using the fixed point index we show that if there exist points not in the cone spectrum arbitrarily close to the cone spectral radius, then the cone spectral radius is continuous. An example is presented showing that continuity may fail, if this condition does not hold. We also analyze the cone spectrum of continuous order-preserving homogeneous maps on finite dimensional closed cones. In particular, we prove that for each polyhedral cone with  $m$  faces, the cone spectrum contains at most  $m-1$  elements, and this upper bound is sharp for each polyhedral cone. Moreover, for each non-polyhedral cone, there exist maps whose cone spectrum contains a countably infinite number of distinct points.

Comments: Corrected some typos. Paper will appear in Proc. Amer. Math. Soc

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## Submission history

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