

# The Exterior Sphere Property vs. Proximal Smoothness

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## Abstract

The exterior sphere condition is compared to proximal smoothness, and it is shown via examples that these two properties are not necessarily equivalent. Geometric conditions are provided under which the equivalence holds. In particular, equivalence holds for compact wedged sets. In addition, the interior sphere condition of control theory is compared to the union of uniform spheres property, and an apparent ambiguity is corrected.

**Key Words:** Proximal smoothness, interior and exterior sphere conditions, wedged sets, proximal analysis, nonsmooth analysis.