

Generalized linear span and its applications

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The notions of first-order and second-order generalized linear spans and index set are defined. Moreover, their properties are investigated and applied to the studies of extension of isometries. We develop the theory of extending the domain of local isometries to the generalized linear spans, where we call an isometry defined in a subset of a Hilbert space a local isometry.

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References

- [1] S.-M. Jung, Extension of isometries in real Hilbert spaces. *In preparation*.
- [2] S.-M. Jung, The conjecture of Ulam on the invariance of measure on Hilbert cube. *arXiv:1807.05624*.
- [3] P. Mankiewicz, On extension of isometries in normed linear spaces. *Bull. Acad. Polon. Sci. Ser. Sci. Math. Astronomy, Phys.*, **20** (1972), 367–371.