

Compactness and averaging operators on function spaces

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Compactness on function spaces plays an important role in analysis. In this talk, using averaging operators, we give a characterization of compact subsets in Lebesgue spaces on metric measure spaces [2], which is a generalization of the Kolmogorov-Riesz theorem [1, 4]. Using this characterization, we recognize the topological type of the space consisting of Lipschitz functions with bounded supports. Furthermore, we characterize the compactness of averaging operators on Banach function spaces [3].

References

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- [4] M. Riesz, *Sur les ensembles compacts de fonctions sommables*, Acta Szeged Sect. Math. **6** (1933), 136–142.