

MR2832086 (2012k:26013) 26B40 26A46 26E15 46E35

Ranjbar-Motlagh, Alireza (IR-SHAR)

An integral type characterization of constant functions on metric-measure spaces. (English. English summary)

J. Math. Anal. Appl. **385** (2012), no. 1, 194–201.

The author approximates a measurable function by Lipschitz functions, and generalizes a characterization of constant functions to metric-measure spaces. Then he establishes a necessary and sufficient condition in order that any measurable function, which satisfies an integrability condition, is constant a.e. The result is interesting. *Yuming Xing*

[References]

1. M. Bourdon, H. Pajot, Cohomologie l_p et espaces de Besov, *J. Reine Angew. Math.* 558 (2003) 85–108. MR1979183
2. H. Brezis, How to recognize constant functions. A connection with Sobolev spaces, *Uspekhi Mat. Nauk* 57 (4) (2002) 59–74 (in Russian), translation in: *Russian Math. Surveys* 57 (4) (2002) 693–708. MR1942116
3. L.C. Evans, R.F. Gariepy, *Measure Theory and Fine Properties of Functions*, Stud. Adv. Math., CRC Press, Boca Raton, FL, 1992. MR1158660
4. A. Grigor'yan, Heat kernels and function theory on metric measure spaces, in: *Heat Kernels and Analysis on Manifolds, Graphs and Metric Spaces*, Paris, 2002, in: *Contemp. Math.*, vol. 338, Amer. Math. Soc., Providence, RI, 2003, pp. 143–172. MR2039954
5. T. Heikkinen, P. Koskela, H. Tuominen, Sobolev-type spaces from generalized Poincaré inequalities, *Studia Math.* 181 (1) (2007) 1–16. MR2317850
6. J. Heinonen, *Lectures on Analysis on Metric Spaces*, Springer-Verlag, New York, 2001. MR1800917
7. K. Pietruska-Paľuba, Heat kernels on metric spaces and a characterisation of constant functions, *Manuscripta Math.* 115 (3) (2004) 389–399. MR2102059
8. A. Ranjbar-Motlagh, *Analysis on metric-measure spaces*, Ph.D. thesis, New York University, 1998. MR2697437
9. A. Ranjbar-Motlagh, Poincaré inequality for abstract spaces, *Bull. Aust. Math. Soc.* 71 (2) (2005) 193–204. MR2133404
10. A. Ranjbar-Motlagh, Generalized Stepanov type theorem with applications over metric-measure spaces, *Houston J. Math.* 34 (2) (2008) 623–635. MR2417413
11. A. Ranjbar-Motlagh, Generalized Rademacher-Stepanov type theorem and applications, *Z. Anal. Anwend.* 28 (3) (2009) 249–275. MR2506360

Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.