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L_p -theory of potentials and quasi-conformal mappings on homogeneous groups. (Russian)

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The theory of potentials on homogeneous groups is developed in the paper; both cases, linear and non-linear, are generalized to this case. At first Riesz potentials and nonlinear potentials of a measure are defined and the term of energy is investigated. A capacity is defined and some capacity and metric characteristics of sets are compared. In the linear case ($p = 2$) some classical theorems of potential theory are generalized to the case of homogeneous groups - for example generalized maximum principle, theorem of Evans-Vasilesco, Frostman's theorem. In the nonlinear case some results of Maz'ya and Khavin, Meyers, Adams, Hedberg and Volf are generalized. Also a case analogous to the Bessel kernels is investigated. Further function spaces on homogeneous groups and a capacity on those spaces are investigated. The last part of the paper is devoted to the function spaces and quasi-conformal mappings on homogeneous groups.

Reviewer: M.Dont

MSC:

[31C45](#) Other generalizations (nonlinear potential theory, etc.)

[31C15](#) Potentials and capacities on other spaces

Keywords:

potentials on homogeneous groups; Riesz potentials; nonlinear potentials; capacity; maximum principle; Frostman's theorem; quasi-conformal mappings