

1014-31-1309

Lucio M.G. Prado* (lprado@gc.cuny.edu), BMCC - Department of Mathematics, 199 Chambers Street, New York, NY 10007. *The Kelvin-Nevanlinna-Royden Criterion and the Existence of solution in p -Dirichlet spaces to the Poisson equation for p -Laplacian on Graphs.*

Nonlinear potential theory has been studied on Riemannian manifolds by a number of researchers using p -capacity as crucial tool. We investigated the analogues of the theory for simple graphs with emphasis, first on discrete version of the Kelvin-Nevanlinna-Royden criterion for Riemannian manifolds, namely, a necessary and sufficient condition for a graph to be p -hyperbolic in terms of existence of a special q -flow, and secondly the divergence formula (energy formula). We also discuss results regarding p -hyperbolicity/ p -parabolicity and the existence of a solution on p -Dirichlet spaces to the Poisson equation for p -Laplacian with unbalanced finite source. An outline of the proofs will be presented if time permits. (Received September 27, 2005)