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Autore	Turesson Bengt O
Titolo	Nonlinear Potential Theory and Weighted Sobolev Spaces [[electronic resource] /] / by Bengt O. Turesson
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Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1736
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Nota di bibliografia	Includes bibliographical references (pages [163]-170) and index.
Nota di contenuto	Introduction -- Preliminaries: Notation and conventions. Basic results concerning weights -- Sobolev spaces: The Sobolev space $W^(mp) w (/Omega)$. The Sobolev space $W^(mp) w (/Omega)$. Hausdorff measures. Isoperimetric inequalities. Some Sobolev type inequalities. Embeddings into L^q μ(Û) -- Potential theory: Norm inequalities for fractional integrals and maximal functions. Meyers' Theory for Lp-capacities. Bessel and Riesz capacities. Hausdorff capacities. Variational capacities. Thinness: The case 1< p.
Sommario/riassunto	The book systematically develops the nonlinear potential theory connected with the weighted Sobolev spaces, where the weight usually belongs to Muckenhoupt's class of Ap weights. These spaces occur as solutions spaces for degenerate elliptic partial differential equations. The Sobolev space theory covers results concerning approximation, extension, and interpolation, Sobolev and Poincaré inequalities, Maz'ya type embedding theorems, and isoperimetric inequalities. In the chapter devoted to potential theory, several weighted capacities are investigated. Moreover, "Kellogg lemmas" are established for various concepts of thinness. Applications of potential theory to weighted Sobolev spaces include quasi continuity of Sobolev functions, Poincaré inequalities, and spectral synthesis theorems.