Recent advances in nonlocal nonlinear potential theory

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The classical nonlinear potential theory has recently been extended to nonlocal nonlinear potential theory, which studies harmonic functions associated with nonlocal nonlinear operators. In this talk, we focus on the harmonic functions solving the nonlocal Dirichlet problem. As in the study of the classical Dirichlet problem, the nonlocal Dirichlet problem can be solved by using Sobolev and Perron solutions. We provide several properties of such solutions. This talk is based on joint works with Anders Björn, Jana Björn, Ki-Ahm Lee and Se-Chan Lee.