Poincaré Inequalities and Neumann Problems for the $p$-Laplacian
David Cruz-Uribe, Scott Rodney, and Emily Rosta

Abstract. We prove an equivalence between weighted Poincaré inequalities and the existence of weak solutions to a Neumann problem related to a degenerate $p$-Laplacian. The Poincaré inequalities are formulated in the context of degenerate Sobolev spaces defined in terms of a quadratic form, and the associated matrix is the source of the degeneracy in the $p$-Laplacian.