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Differential inequalities on manifold

The current presentation attempt to explain some interplays between differential inequalities and the geometry structure of the background manifold. To this end, two models are considered: p-Laplacian inequality and fractional Laplacian inequality. While different ingredients are employed for these two models, the first one is based on a perturbation argument of the fundamental solution to p-Laplace equation, the second one is relied on an extension method developed recently by Caffarelli and Silvestre.