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*Sharp Constants and Minimizers for a Class of Inequalities*

We consider a class of Caffarelli–Kohn–Nirenberg inequalities without restricting the pertinent parameters and determine the values of the optimal constants and the functions that achieve them, i.e., minimizers of a suitable functional. By studying a corresponding Euler–Lagrange equation, we also find infinitely many sign-changing solutions at higher energy levels in addition to the ground-state solutions.