SYMMETRY RESULTS FOR CAFFARELLI-KOHN-NIRENBERG INEQUALITIES

The *Caffarelli-Kohn-Nirenberg inequalities* in space dimension $N \geq 2$ can be written as

$$\left(\int_{\mathbb{R}^N} \frac{|w(x)|^p}{|x|^{b\,p}}\,dx \right)^{2/p} \leq C^N_{a,b} \int_{\mathbb{R}^N} \frac{|\nabla w(x)|^2}{|x|^{2\,a}}\,dx$$

for suitable parameters a, b, p. This talk is concerned with new symmetry results for the extremals of these inequalities in a range of parameters for which no explicit results of symmetry have previously been known. The method proceeds via spectral estimates. This is joint work with Jean Dolbeault and Maria Esteban.