Seminar/Talk

A Dual Form of the Sharp Nash Inequality and its Weighted Generalization

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The well known duality between the Sobolev inequality and the Hardy-Littlewood-Sobolev inequality suggests that the Nash inequality could also have an interesting dual form, even though the Nash inequality relates three norms instead of two. We provide such a dual form here with sharp constants. This dual inequality relates the L^2 norm to the infimal convolution of the L^\infty and H^{-1} norms. The computation of this infimal convolution is a minimization problem, which we solve explicitly, thus providing a new proof of the sharp Nash inequality itself. This proof, via duality, also yields the sharp form of some new, weighted generalizations of the Nash inequality as well as the dual of these weighted variants. (Joint work with Eric Carlen.)

Thursday, October 25, 2018 04:00pm - 06:00pm
Big Seminar room Ground floor / Office Bldg West (I21.EG.101)

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