998-81-391 **Eric Carlen**, **Elliott Lieb** and **Michael Loss*** (`loss@math.gatech.edu`), Georgia Institute of Technology, School of Mathematics, 686 Cherry Street, Atlanta, GA 30332-0160. *A Sharp analog of Young's Inequality on S^N and Related Entropy Inequalities.*

We prove a sharp analog of Young's inequality on S^N, and deduce from it certain sharp entropy inequalities. The proof consists of constructing a heat flow that drives the inequality to its sharp value, while transporting the functions to the optimizers. This strategy also works for the general Young inequality on R^N and yields a fairly simple proof of the fact (due to Brascamp and Lieb) that it suffices to optimize over Gaussian functions in order to find the sharp constant.

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