1053-42-286   **Elliott H. Lieb*** (`lieb@princeton.edu`). *Inversion positivity and the sharp Hardy-Littlewood-Sobolev inequality.*

We give a new proof of certain cases of the sharp HLS inequality. Instead of symmetric decreasing rearrangement it uses the reflection positivity of inversions in spheres. In doing this we extend a characterization of the minimizing functions due to Li and Zhu. (Received September 07, 2009)