

1052-81-82

**Robert Seiringer\*** ([rseiring@princeton.edu](mailto:rseiring@princeton.edu)), Department of Physics, Princeton University, Princeton, NJ 08542. *Hardy-Lieb-Thirring inequalities and relativistic stability of matter.*

Lieb-Thirring inequalities are bounds on power sums of the modulus of negative eigenvalues of Schroedinger-type operators. We present some recent generalizations of such bounds, allowing for the subtraction of a Hardy-term; i.e., we show that the Lieb-Thirring inequalities remain true when the critical Hardy weight is subtracted from the Laplace operator. This result has some interesting applications concerning the stability of relativistic matter interacting with electromagnetic fields, and allows for the extension of previous results to all nuclear charges less than the critical one. This is joint work with E. Lieb and R. Frank. (Received August 20, 2009)