

# LIEB-THIRRING-HARDY INEQUALITIES AND THE STABILITY OF RELATIVISTIC MATTER.

RUPERT FRANK  
Princeton University, USA

We show that the Lieb-Thirring inequalities on moments of negative eigenvalues of Schrödinger-like operators remain true, with possible different constants, when the critical Hardy-weight is subtracted from the Laplace operator. Similar results are true for fractional powers of the Laplacian and, in particular, for relativistic Schrödinger operators. We also allow for the inclusion of magnetic vector potentials. As an application, we extend the proof of stability of relativistic matter with magnetic fields to the critical value of the nuclear charge. The talk is based on joint works with T. Ekholm and with E. H. Lieb and R. Seiringer.