SPEAKER:

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TITLE:

Gradient Corrections in Atomic Physics

ABSTRACT:

During the last few years there has been a systematic pursuit for sharp estimates of the energy components of atomic systems in terms of their single particle density. The common feature of these estimates is that they include corrections that depend on the gradient of the density. In this talk I will review these results. The most recent result is the sharp estimate of P.T. Nam on the kinetic energy. I will also present some recent results concerning geometric estimates for generalized Poincar inequalities obtained in collaboration with C. Vallejos and H. Van Den Bosch. These geometric estimates are a useful tool to estimate the numerical value of the constant of Nam's gradient correction term.