Abstract Submitted
for the TSF07 Meeting of
The American Physical Society

A New Max-Min Variational, Semi-Definite Programming Based, Quantization Procedure. CARLOS HANDY, Texas Southern University — A new variational quantization procedure is developed exploiting the moment problem based analysis underlying the Eigenvalue Moment Method (EMM) developed by Handy, Bessis, and co-workers [1-5]. The EMM procedure is the first to exploit Semidefinite Programming (SDP) analysis in solving quantum problems, and has played a pivotal role in defining new computational tools for tackling non-Hermitian problems such as those concerning PT-invariant (and symmetry breaking) systems [6] and Regge pole calculations for atomic-molecular scattering [7]. It offers a more rigorous (fool-proof) framework than other methods, including those based on a Hill determinant approach. By extension, these same properties are enjoyed by the new Max-Min variational procedure. We offer some illustrative examples which underscore important convexity properties of the underlying "volcano-function" [4,5]. [1] C. R. Handy and D. Bessis, Phys. Rev. Lett. 55, 931 (1985). [2] C. R. Handy, D. Bessis, T. D. Morley, Phys. Rev. A 37, 4557 (1988). [3] C. R. Handy, D. Bessis, G. Sigismondi, T. D. Morley, Phys. Rev. Lett. 60, 253 (1988). [4] C. R. Handy, K . Appiah, D. Bessis, Phys. Rev. A 50, 988 (1994). [5] C. R. Handy, Phys. Rev. A 52, 3468 (1995). [6] C. R. Handy, J. Phys. A 34, 5065 (2001). [7] C. R. Handy, C. J. Tymczak, A. Z. Msezane, Phys. Rev. A 66, 050701 (R) (2002).

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Date submitted: 05 Oct 2007 Electronic form version 1.4