

Abstract Submitted  
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**Quasiparticle Density Functional Theory with Dispersive Optical Model Self Energies** MARK BURNETT, WILLEM DICKHOFF, Department of Physics, Washington University, St. Louis, Missouri 63130, USA — The quasiparticle extension of Kohn-Sham Density Functional Theory proposed by Van Neck et al.<sup>1</sup> and further applied to atoms<sup>2</sup> is promising for nuclear calculations, because overlap functions and spectroscopic factors are in principle calculable. Starting with spherical Skyrme-Hartree-Fock-Bogolyubov calculations,<sup>3</sup> and self energies provided by Dispersive Optical Model calculations,<sup>4</sup> new quasiparticle functionals are explored for nuclei using this method.

<sup>1</sup>D. Van Neck, et al., Phys. Rev. A 74, 042501 (2006)

<sup>2</sup>S. Verdonck, et al., Phys. Rev. A 74, 062503 (2006)

<sup>3</sup>K. Bennaceur, J. Dobaczewski, Comput. Phys. Comm. 168 (2005) 96-122

<sup>4</sup>R. J. Charity, et al., Phys. Rev. C 76, 044314 (2007) and R. J. Charity, et al., Phys. Rev. Lett. 97, 162503 (2006)

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