1116-81-719 **Anna Vershynina*** (annavershynina@gmail.com), Zentrum Mathematik, M5, Technische Universitat Munchen, Boltzmannstrasse 3, 85748 Garching, Germany. *Complete criterion for convex-Gaussian-state detection.*

We present a new criterion that determines whether a fermionic state is a convex combination of pure Gaussian states. This criterion is complete and characterizes the set of convex-Gaussian states from the inside. If a state passes a program it is a convex-Gaussian state and any convex-Gaussian state can be approximated with arbitrary precision by states passing the criterion. The criterion is presented in the form of a sequence of solvable semidefinite programs. It is also complementary to the one developed by de Melo et. al. in 2013 which aims at characterizing the set of convex-Gaussian states from the outside. Here we present an explicit proof that criterion by de Melo et al. is complete, by estimating a distance between an n-extendible state, a state that passes the criterion, to the set of convex-Gaussian states. (Received September 11, 2015)