1086-60-1429 **Natasha Blitvić*** (natasha.blitvic@vanderbilt.edu), Department of Mathematics, 1326 Stevenson Center, Vanderbilt University, Nashville, TN 37240. *Two-parameter Non-commutative Central Limit Theorem.*

The starting point for this talk is the question: how might one discover meaningful quantum statistics? The Gaussian, semicircular and, more generally, the q-Gaussian measures play a fundamental role in classical, free, and q-deformed probability, respectively, with the latter referring to the setting of q-deformed canonical commutation/anti-commutation relations. In 1992, Speicher showed that the q-Gaussian statistics can also be realized as Central Limit Theorem-type limits of stochastic mixtures of commuting and anti-commuting elements. In this talk, we will show how to generalize Speicher's theorem to a setting where the elements are assumed to commute with respect to real-valued commutation coefficients, as opposed to commutation signs. A natural specialization will then give rise to the (q,t)-Gaussian statistics, a two-parameter family of real-valued probability measures with natural Fock-space representations and rich ties to special functions, orthogonal polynomials, and combinatorics (further discussed in abstract *1086-60-836*). We will also construct general random matrix models, by introducing a suitable two-parameter deformation of the Jordan-Wigner construction, and discuss their application to the first order statistics of reduced Wigner processes. (Received September 21, 2012)