1125-35-2091 **Shijun Zheng*** (szheng@georgiasouthern.edu), Department of Mathematical Sciences, Georgia Southern University, Statesboro, GA 30460-8093. *Minimal mass-energy dynamics for rotating BEC.*

I will review some recent progress concerning long time behaviors (existence, blowup and excited states) for the Gross-Pitaevskii equation with rotation. The GPE belongs in the type of magnetic nonlinear Schroedinger systems (mNLS) with a Lorentz gauge, which arises in modeling dilute, trapped boson gases with integer-spin in ultra-cold temperature.

Such system may exhibit interesting symmetries as well as stationary wave phenomenon, accompanied by spinor and quantized vortex, a remarkable signature for the superfluidity of Bose-Einstein condensation (BEC). I will discuss certain sharp criterion in terms of the mass and energy for the ground state in two and three dimensions. (Received September 19, 2016)