# Abstract

Ultra-dilute self bound droplets in Bose-Einstein condensates have been of great interest since their first prediction in 2015. The self-bound nature of these bosonic gases combined with their extremely low densities make them a prime target of investigation for both experimentalists and theoreticians. In this thesis work dipole-dipole interacting gases are simulated using the Gross-Pitaevskii equation applying a fourth order, split-operator imaginary time method in two dimensions. First, the systems are studied at collapse for dipoles aligned with a magnetic field that tilts the dipoles in the two-dimensional plane. For some angles the dipole interaction becomes partly attractive which can lead to the collapse of the mean field solution. However, quantum fluctuations can stabilize the gas. Introducing the so-called Lee-Huang-Yang (LHY) correction, the system can be stabilized and self-bound droplets may form. Here, we investigate this stabilization for a quasi two-dimensional set-up.