Abstract. The main topic of the course is the analysis of many-body Schrödinger equations in the context of the physical phenomenon Bose-Einstein condensate (BEC). We will go through the book "The Mathematics of the Bose Gas and its Condensation" by E. H. Lieb, R. Seiringer, J. P. Solovej, J. Yngvason (arXiv:cond-mat/0610117) on the stationery aspect of the matter. If time permits, we will talk about the time-dependent aspect of the subject as well.

In the beginning, we are using the appendix of Terry Tao's book: "Nonlinear dispersive equations: local and global analysis" for basic materials. It can be downloaded at https://terrytao.wordpress.com/books/nonlinear-dispersive-equations-local-and-global-analysis/