**A Note on Magnetized and Self-Gravitating Dark Matter Halos with Bose-Einstein Condensation**

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**Abstract**. In the present study, we assume a rotating, self-gravitating dark matter which is magnetized under the influence of Bose-Einstein condensation. For the condensate dark matter halos, the non-relativistic Gross-Pitaevskii equation is used and for the hydrodynamical evolution, continuity and modified Euler equation are considered. The modified Maxwell equation is also considered to show the influences of the magnetic field and finite electrical resistivity. By assuming small perturbations of the quantum hydrodynamical equations, we get the dispersion relation and the Jeans wave number. From the findings, we found that the Jeans wave number depends on quantum potential and rotation. In the absence of resistivity, we observe that the Jeans wave number modifies due to the magnetic field also.

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