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Interaction effect of a topological semimetal Na₃Bi in magnetic fields RUIXING ZHANG, The Pennsylvania State University, JIMMY HUTASOIT, Leiden University, CHAOXING LIU, The Pennsylvania State University — We study the interaction induced instability of a topological semimetal Na₃Bi in magnetic field based on the mean field theory. The phase diagram can be classified by two sets of order parameters, which break chiral symmetry and thus gap the system. In certain interaction parameter regions, we find these two order parameters can co-exist. To understand this phase co-existence and phase transitions in the phase diagram, we analytically solve the minimum problem of free energy perturbatively. The possible experimental consequence is also studied.

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