using different values of coupling strengths for the scalar diquark and isoscaler vector terms. The EOS at intermediate densities are obtained using a Maxwell construction.

We find that the stability of the non-rotating hybrid stars is very much sensitive to the EOSs for the colour superconducting quark matter and almost independent of the choice for the EOS for the nuclear matter. The stable configurations of the hybrid stars exist only for the large enough value for the scalar diquark coupling strength. Though, the stability of the hybrid stars are not sensitive to the choice of the EOSs for the nuclear matter, but, compositions of the hybrid stars are at variance for these EOSs. If the EOS for the nuclear matter is stiff, core of the hybrid star is composed of colour superconducting quark matter which is either in the 2SC or the CFL phase. In the later case, CFL quark matter core is surrounded by a thin layer of the 2SC quark matter and the outer layer composed of nuclear matter .

The stability of the rotating hybrid star is sensitive to the choice of the EOS for the nuclear matter as well as that for the colour superconducting quark matter. In particular, we find that the values of the critical rotation frequency vary from about 350 Hz to 1275 Hz depending upon the choice of the EOSs for the nuclear matter and the colour superconducting quark matter. Our results also indicate that the EOSs for the colour superconducting quark matter obtained within the NJL model may be adjusted for the various nuclear matter EOSs in such a way that it yields (a) the maximum mass in the non-rotating limit larger than $1.44 M_{\odot}$ which is the most accurately measured value for the maximum mass of a compact star and (b) the maximum allowed rotation frequency is larger than the current observational limit of 716 Hz.

Finally, we would like to mention that our present study can be extended in several ways. The quark matter in the crystalline color superconducting phase, expected to appear at the intermediate densities, should also be considered. One might also include the contributions from the hyperons which would soften the hadronic EOS. The phase transition from hadron to the quark matter should proceed via mixed phase which can be constructed using the Gibbs conditions.