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Slow Rotating Bose-Einstein Condensate stars

We obtain the global properties of static and slowly rotating self-gravitating Bose-Einstein condensate (BEC) stars and study the effect of temperature on the stellar structural properties. For this we consider a recently developed temperature dependent equation of state of BEC stars formed due to Cooper pairing of nucleons. We use the Hartle-Thorne slow rotation approximation equations to obtain the stellar profiles. The mass-radius values are found to be decreasing with increasing temperatures for both the static and rotating cases. We find that the inclusion of temperature has only a negligible effect on the maximum mass but a considerable effect on the rotating stellar profiles. Our analysis was extended to studying the effect of various EoS parameters like the boson mass and the interaction strength on the static and rotating stellar structures of temperature dependent BEC stars.

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