



Contribution ID: 416

Type: Postar

## Magnetic Moment of Decuplet baryons in dense nuclear matter using chiral SU(3) quark mean field model.

In this study, we have calculated the effective magnetic moments of decuplet baryons as a function of density for different values of the magnetic fields. The impact of the magnetic field has been realised through the chiral SU(3) mean field model which considers quarks as the fundamental degrees of freedom. We have studied the impact of varying the magnetic fields on the quark masses and hence the masses of the decuplet baryons and have used these masses as an input to calculate individual contributions coming from valence quarks, quark sea and orbital angular momentum of the quark sea towards the total magnetic moment of the decuplet baryons. These individual contributions have been calculated using chiral constituent quark model. Studying the magnetic moment of baryons provides crucial insights into their internal quark structure and interactions, helping to refine models of strong force dynamics.

### Field of contribution

Phenomenology

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