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Positions of the magneto-roton minima in the fractional quantum Hall effect[1] SONGYANG PU, Pennsylvania State Univ, AJIT COIMBATORE BALRAM, Niels Bohr International Academy and the Center for Quantum Devices; Pennsylvania State Univ — The minima in the dispersion of the neutral excitation, which is a composite fermion exciton, are called magneto-roton minima. Golkar *et al.*[1] have predicted the positions of the magneto-roton minima at filling factors $s/(2s+1)$ by treating the excitation as a deformation of the parent composite fermion Fermi sea at 1/2. We use the composite fermion theory to calculate the exciton dispersion for different filling factors up to 5/11, and find the positions of the first few magneto-roton minima agree well with Golkar *et al.*s predictions. Furthermore, we test the prediction that the positions of magneto-roton minima are insensitive to the microscopic form of the interaction by applying two different interactions in our calculation, namely the usual Columb interaction and the effective interaction in the $n = 1$ Landau level of graphene. We see the positions of magneto-roton minima are nearly unchanged with these two different interactions.
Golkar *et al.* cond-mat arXiv:1602.08499

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