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【185】 The influence of correlation effects on the dilute, two-dimensional electron liquid

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Compared to bulk systems, in the two-dimensional realization of electron liquids, correlation effects are much more pronounced, key examples being the collective modes such as plasmons and magnons. Taking care of these effects leads to substantially lower excitation energies. For highly dilute semiconductor quantum wells it is mandatory to account for dynamic multi-particle fluctuations, which substantially decrease the collective mode even further and introduce finite lifetime to the mode. A spin sensitive study of the electron system promises new insights via the longitudinal spin plasmon and a highly interesting ‘magnetic antiresonance’, where both (spin-spin response and spin-density response) vanish.

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