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【256】Swift state-of-the-art calculations of the 2D Electron Liquid

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Understanding electron correlations is nowadays crucial for advances in quantum electronics and nano-sciences. Quantum Monte-Carlo simulation (QMCS) methods, being highly time consuming, are limited to yield selective data points only. We here employ a Hyper-Netted-Chain-theory based approach to compute the spin-resolved pair distribution functions and static structure factors of the two-dimensional, partially spin-polarised electron liquid. Compared to QMCS, remarkable accuracy is achieved in a fraction of time. For a broad range of densities and polarisations we apply this to investigate how increasing the layer-width alters the correlations.

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