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Elastic properties of electronic solids: the smectic phase[1] A.M. ETTOUHAMI, F.D. KLIRONOMOS, A.T. DORSEY, University of Florida — We calculate the elastic moduli of the anisotropic triangular Wigner crystal (WC) of two-dimensional electrons, which we predict will appear in Landau levels of index $n \geq 2$ at intermediate and high values of the partial filling factor ν^*. We find that these anisotropic WC's, which can also be viewed as a periodic arrangement of one-dimensional stacks (or channels) of electron guiding centers, have a vanishingly small shear modulus for uniform shear deformations along the direction of the channels. This suggests that the channels can slide freely past each other, and that the anisotropic WC is in fact a smectic. We discuss the experimental implications of our results in light of recent microwave conductivity measurements.

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