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Effective elasticity theory for quantum Hall liquid crystals CINTIA LAPILLI, CARLOS WEXLER, GIOVANNI VIGNALE, University of Missouri-Columbia — A variety of recent experiments probing the low-temperature transport properties of quantum Hall systems have been successfully interpreted in terms of liquid crystalline mesophases dubbed *quantum Hall liquid crystals*. Making use of the single mode approximation in combination with a variational calculation of the static structure factor we have recently found that density fluctuations in these systems exhibit a striking spectrum of collective modes. In the limit of zero wavevector $\vec{q}$ the dispersion of these modes is singular, with a gap that is dependent on the direction along which $\vec{q} = 0$ is approached, for both *nematic* and *tetratic* liquid crystalline states, but remains regular in the *hexatic* state. Here we provide a physical interpretation of these results in terms of an effective elasticity theory for anisotropic systems projected onto the lowest Landau level, consistent with the symmetry groups of the different putative states.

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