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Abstract for an Invited Paper
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Interacting Flatland Electrons Never Stop Surprising

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I will present the highlights of several new magneto-transport experiments that probe the physics of interacting two-dimensional (2D) electrons (or holes) at high magnetic fields and low temperatures. These include: (1) observation of rare fractional quantum Hall states at even-denominator (1/2) filling factor in 2D hole systems at an unusual crossing of the two lowest Landau levels [1,2]; (2) tuning and measuring the shape and anisotropy of the composite fermion (CF) Fermi contours [3-5], and (3) data suggesting that CFs themselves can be interacting and form their own fractional quantum Hall and Wigner solid states [6]. I will also discuss a bilayer experiment where the CFs in one layer are used to probe an electron Wigner solid in the other layer [7].

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