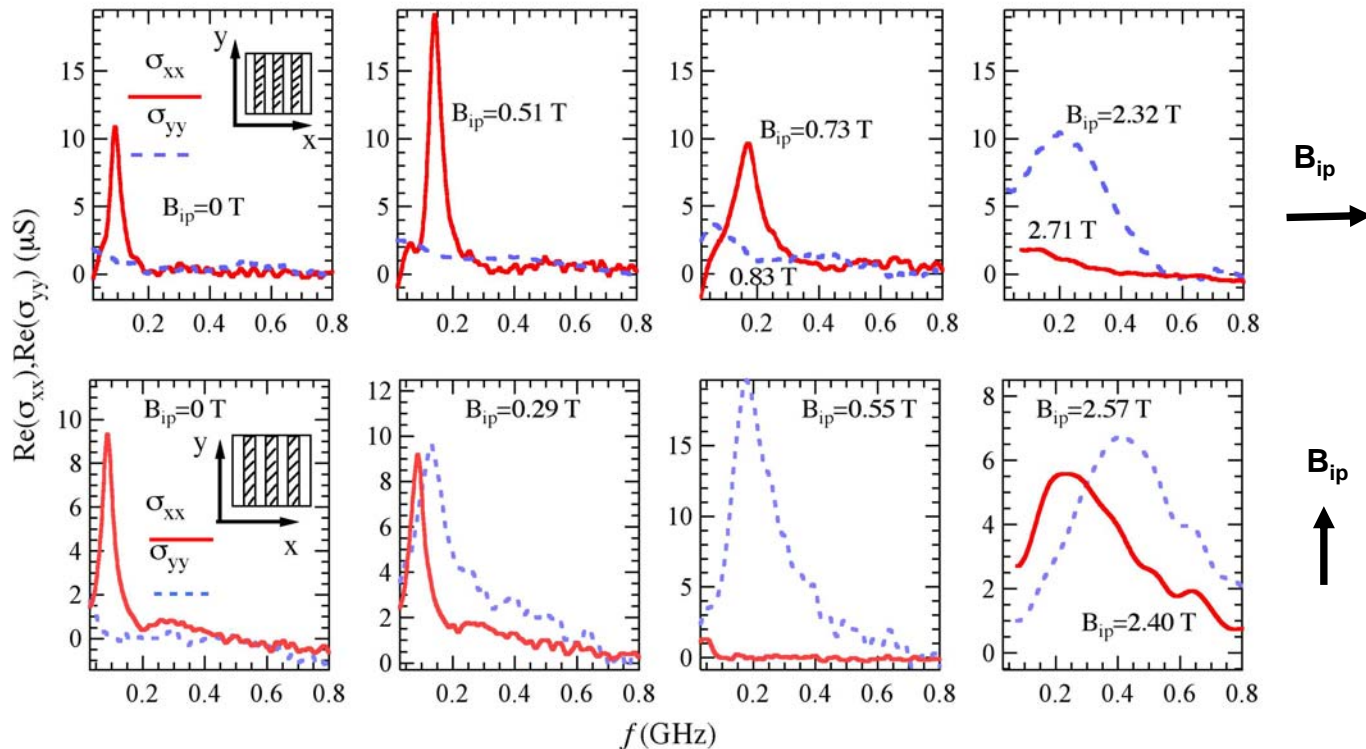


# Pinning Mode Resonances of 2D Electron Stripe Phases: Effect of an In-Plane Magnetic Field $B_{ip}$

Han Zhu, G. Sambandamurthy, L. W. Engel, D. C. Tsui, L. N. Pfeiffer, and K. W. West, *Phys. Rev. Lett.*, 102, 136804 (2009)

- 2D electrons: Stripes of charge density near Landau level filling  $\nu=9/2,11/2,13/2\dots$
- Anisotropic: hard/easy direction for high/low dc resistance
- Striking resonance in diagonal conductivity spectra for electric field in hard direction only
- Charge oscillates within disorder potential: pinning mode



- Apply in-plane field  $B_{ip}$ : Resonance direction switches, indicating stripes reoriented.
- Resonance frequency measures pinning energy, increases with  $B_{ip}$ , depends on  $B_{ip}$  direction: Disorder acts as a symmetry breaking mechanism.