Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Interlayer coherent composite Fermi liquid phase in quantum Hall bilayers JASON ALICEA, OLEXEI MOTRUNICH, GIL REFAEL, MATTHEW P.A. FISHER, Caltech — We introduce an *interlayer coherent composite Fermi liquid* for $\nu = 1/2+1/2$ bilayers, in which interlayer Coulomb drives exciton condensation of composite fermions. As a result, composite fermions propagate coherently *between* layers—even though electrons do not—and form bonding and antibonding Fermi seas. This phase is compressible with respect to symmetric currents but quantum Hall-like in the counterflow channel. Quantum oscillations of the composite Fermi seas generate a new series of incompressible states at $\nu = p/[2(p \pm 1)]$ per layer (p an integer), which is a bilayer analogue of Jain's sequence.

Jason Alicea
Caltech

Date submitted: 18 Nov 2009 Electronic form version 1.4