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 $\nu = p/[2(0 \pm 1)]$ per layer ($p$ an integer), which is a bilayer analogue of Jain’s sequence.