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Emergent Dissipation in the $\nu = 1$ Quantum Hall Bilayer[1] GANPATHY MURTHY, University of Kentucky, HERBERT FERTIG, Indiana University — Disorder is known to be central to the $\nu = 1$ bilayer [1]. Building on our previous study of the bilayer $\nu = 1$ system in a periodic potential [2] to capture the nonperturbative effects of disorder, we construct a $T = 0$ effective theory, in which the XY angle is coupled to an emergent Ising spin. We uncover a $z = 2$ quantum phase transition with emergent dissipation. Calculations of the interlayer tunnelling conductance and counterflow conductivity will be presented.

[1] H. A. Fertig and G. Murthy, Phys. Rev. Lett. **95**, 156802 (2005).
[2] J. Sun, G. Murthy, H. A. Fertig, and N. Bray-Ali, Phys. Rev. B, **81**, 195314 (2010).

[1]NSF DMR-0703992 and DMR-0704033.

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