

Abstract Submitted  
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**Breakdown of the  $\nu = 1$  integer quantum Hall state in a high mobility sample**<sup>1</sup> HAOYUN HUANG, SEAN MYERS, Purdue University, LOREN PFEIFFER, KIRK BALDWIN, Princeton University, GABOR CSATHY, Purdue University — The integer quantum Hall Wigner solid was recently observed in high mobility GaAs two-dimensional electron gas samples near filling factor  $\nu = 1$ . We performed large signal current-voltage characteristic measurements in the region of this phase. We observed well-defined breakdown behavior in the regions of both the integer quantum Hall Wigner solid and the Anderson insulator. To our surprise, we find that the critical current exhibits a monotonic dependence as the filling factor moves away from the center of the  $\nu = 1$  plateau, even in the region of the Wigner solid. Therefore, it appears that the breakdown in the current-voltage characteristics measured along the  $\nu = 1$  integer quantum Hall plateau does not differentiate the reentrant integer quantum Hall Wigner solid from the Anderson insulator. \*The work at Purdue was supported by the US DOE, Office of Basic Energy Sciences under the award DE-SC0006671. Sample growth efforts at Princeton University were supported by the National Science Foundation MRSEC Grant DMR-1420541 and the Gordon and Betty Moore Foundation Grant GBMF 4420.

<sup>1</sup>Breakdown of the  $\nu = 1$  integer quantum Hall state in a high mobility sample

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