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Effect of alloy disorder on quantum Hall stripes[1] Q. SHI, M. ZUDOV, University of Minnesota, J. WATSON, G. GARDNER, M. MANFRA, Purdue University — It is widely believed that quantum Hall stripes are best observed in very clean GaAs samples. However, the role of disorder on stripes has not been systematically studied and remains poorly understood. Here, we report studies on the impact of alloy disorder, controlled by the aluminum content x in the $Al_xGa_{1-x}As$ channel ($x = 0$ 0.0078), in a series of otherwise similar quantum wells. We investigate how alloy disorder affects the low temperature transport, as well as the melting transition of stripes at elevated temperatures, and compare them to the bubble phases. We also discuss the impact of alloy disorder on the reorientation of stripes by an in-plane magnetic field.

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