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**Luiz Gustavo Farah, Justin Holmer\*** (jholmer@nsf.gov) and **Svetlana Roudenko**. *Blow-up for the 2D cubic Zakharov-Kuznetsov equation.*

The generalized Zakharov-Kuznetsov (ZK) equation is a higher dimensional version of the generalized Korteweg-de Vries (gKdV) equation. The two-dimensional focusing cubic case of ZK is  $L^2$  critical, and analogous to the quintic case of gKdV, blow-up is expected for negative energy solutions with mass slightly above that of the ground state solitary wave. We prove that such solutions do in fact blow-up in either finite or infinite time. This is accomplished by reducing the problem to a nonlinear Liouville theorem stating that any solution that remains close a modulation of the ground state and satisfies a uniform-in-time  $L^2$  compactness property, must in fact be equal to the ground state. (Received September 26, 2017)