1030-76-344 **Alexander Kiselev** and **Andrej Zlatos*** (andrej@math.uchicago.edu). *Blow-up and regularity in some discrete models of the Euler equation.*

We consider a family of discrete models for the Euler equation. These are infinite coupled systems of ODEs involving functions which can be thought of as wavelet coefficients of the fluid velocity, and satisfy some natural scaling and conservation conditions. The extremal cases are a model proposed recently by Katz and Pavlović, and a model that goes back to Obukhov's studies of the energy cascade in developed turbulence. We show that the Katz-Pavlović model leads to finite time blowup for any initial datum, while the Obukhov model has a global solution for any sufficiently smooth initial datum. (Received August 07, 2007)