

BLOW UP IN A 3-D VECTOR MODEL FOR THE EULER EQUATIONS

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We present a 3-d vector dyadic model given in terms of an infinite system of nonlinearly coupled ODE. This "toy" model is inspired by a Littlewood-Paley partition of the nonlinear term in the Euler equations for the motion of an ideal fluid. The model has structural similarities with the Euler equations and it mimics certain important properties of the fluid equations, namely conservation of energy and divergence free velocity. We prove that for certain families of initial data blow-up occurs in the model system in the sense that the H^s , $s > 3/2$, norm becomes unbounded in finite time.

This is joint work with Natasa Pavlovic.
