1108-35-322 **Nathan Pennington*** (nathanpennington@creighton.edu), NE 68102. *Low regularity global solutions to a generalized Leray-alpha equation.*

It has recently become common to study many different approximating equations of the Navier-Stokes equation. One of these is the Leray-α equation, which regularizes the Navier-Stokes equation by replacing (in most locations) the solution u with $(1-\alpha^2\triangle)u$. Another is the generalized Navier-Stokes equation, which replaces the Laplacian with a Fourier multiplier with symbol of the form $-|\xi|^\gamma$ ($\gamma = 2$ is the standard Navier-Stokes equation), and recently in [**?**] Tao also considered multipliers of the form $-|\xi|^\gamma/g(|\xi|)$, where g is (essentially) a logarithm. The generalized Leray-α equation combines these two modifications by incorporating the regularizing term and replacing the Laplacians with more general Fourier multipliers, including allowing for g terms similar to those used in [**?**]. Here we prove the existence of unique, low regularity solutions to the generalized Leray-alpha equation with non-L^2 initial data. (Received January 17, 2015)