

1107-35-261

Luis Silvestre and **Vlad Vicol*** (vvicol@math.princeton.edu), Fine Hall, Washington Road, Princeton, NJ 08544. *On a transport equation with nonlocal drift.*

Cordoba, Cordoba, and Fontelos proved that for some initial data, the following nonlocal-drift variant of the 1D Burgers equation does not have global classical solutions

$$\partial_t \theta + u \partial_x \theta = 0, u = H\theta,$$

where H is the Hilbert transform. We provide four essentially different proofs of this fact. Moreover, we study possible Holder regularization effects and conjecture that solutions which arise as limits from vanishing viscosity approximations are bounded in the Holder class in $C^{1/2}$ for all positive time. (Received January 16, 2015)