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Martina Hofmanova and **James-Michael Leahy*** (leahyj@usc.edu), USC Dornsife,
Department of Mathematics, 3620 S. Vermont Ave., KAP 104, Los Angeles, CA 90089, and
Torstein Nilssen. *On the Navier Stokes Equation with Rough Transport Noise.*

In this talk, we present some results on the existence of weak-solutions of the Navier-Stokes equation perturbed by transport-type rough path noise with periodic boundary conditions in dimensions two and three. The noise is smooth and divergence free in space, but rough in time. We will also discuss the problem of uniqueness in two dimensions. The proof of these results makes use of the theory of unbounded rough drivers developed by M. Gubinelli et al.

As a consequence of our results, we obtain a pathwise interpretation of the stochastic Navier-Stokes equation with Brownian and fractional Brownian transport-type noise. A Wong-Zakai theorem and support theorem follow as an immediate corollary. This is joint work with Martina Hofmanová and Torstein Nilssen. (Received September 26, 2017)