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**Wojbor A Woyczynski\*** ([waw@case.edu](mailto:waw@case.edu)), Case Western Reserve University, Cleveland, OH 44106. *Multiscale conservation laws driven by Lévy stable and Linnik diffusions: asymptotics, explicit representations, shock creation, preservation and dissolution.*

Asymptotic behavior of subcritical multifractal fractal conservation laws with integrable initial conditions corresponds to that of the linearized case. Thus obtaining explicit solutions of the latter is of interest. Some fractal conservation laws driven by Lévy  $\alpha$ -stable diffusions exhibit shocks for bounded, odd, and convex on the positive half-line, initial data when the parameter  $\alpha < 1$ . For the Lévy  $\alpha$ -Linnik diffusions the local behavior is strikingly different, although we are able to establish analytically that the large time behavior of the two types of conservation laws are similar. But the main new insights obtained via large-scale numerical experiments is that, for any  $0 < \alpha \leq 2$ , the conservation laws driven by  $\alpha$ -Linnik diffusions display shocks that do not dissipate over time while those for  $\alpha$ -stable diffusion ( $0 < \alpha \leq 1$ ) do. (Joint work with B. Gunaratnam and K. Gorska) (Received August 03, 2015)