1120-60-42 **Leonid Petrov*** (petrov@virginia.edu), Department of Mathematics, University of Virginia, 141 Cabell Drive, Kerchof Hall, Charlottesville, VA 22904. *Inhomogeneous exponential jump model: a KPZ particle system with new unusual phase transitions.* Preliminary report.

I will talk about a stochastic interacting particle system on the continuous real line equipped with a function $\xi(x)$ determining the speed of jumping particles at each location $x \in \mathbb{R}$. The waiting times and jump lengths of particles are exponentially distributed, and the behavior of the system is somewhat similar to a queuing model. By relating this system to the inhomogeneous stochastic higher spin six vertex model, it can be shown that the exponential jump model is exactly solvable for an arbitrary speed function $\xi(x)$. In particular, q-moments of the height function admit explicit multiple contour integral expressions. I will discuss the asymptotic behavior of the system (as time and the number of particles grows), which leads to limit shapes with new unusual phase transitions. The fluctuations of the random height function around the limit shape are governed by the GUE Tracy–Widom distribution. (Received January 31, 2016)