## Talk 8: Henri Elad-Altman (Université Sorbonne Paris Nord)

## Title: Long-time behavior of a line model with degenerate environment

Abstract. We consider a 2-dimensional model of random walk in random environment known as line model. The environment is described by two families of i.i.d. random variables dictating rates of jumps in the vertical, respectively horizontal direction, and whose values are constant along vertical, respect. horizontal lines. We are interested in the cases where either the horizontal jump rates, or the vertical ones, or both, are heavy-tailed. In the case where all the jump rates are heavy-tailed, we provide a sufficient condition for non-explosion, and we provide an upper bound for the scaling exponents of both components of the walk. In the semi-degenerate case where heavy tails affect only jumps in one direction, we further prove a scaling limit result : under a super-diffusive scaling, the fast component of the walk is shown to converge in law to a time-changed Brownian motion, with a time-change given by a Kesten-Spitzer process. This is joint work with Jean-Dominique Deuschel (TU Berlin) and Toyomu Matsuda (now in industry).