1102-20-199   **Moon Duchin***, Math Department, Tufts University, Medford, MA 02155. *Some new work in random groups.* Preliminary report.

I will report on some progress made by students and faculty working in a research cluster in Random Groups. Our work dealt with variations on the standard Gromov density model– choose more and more relators of longer and longer length, with d as a parameter controlling the rate of exponential growth of the number of relators. There are remarkable results finding density thresholds for the appearance and disappearance of various group properties as relator length goes to infinity.

In the main project I will describe, we consider random nilpotent groups. A second project investigates the sharpness of the famous phase transition from infinite hyperbolic groups ($d < 1/2$) to trivial groups ($d > 1/2$).

Time permitting, I will survey some of the other projects as well.

Participants and contributing visitors include: Cordes, Coulon, Delp, Duchin, Duong, Dymarz, Gupta, Ho, Jankiewicz, Kahle, Kilmer, Kozma, Lelièvre, Mackay, Manning, Meckler, Sánchez, Schaffer-Cohen, Tamuz, and Walker. (Received July 28, 2014)