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**Glass-like dynamics in collective cell migration** THOMAS ANGELINI, University of Florida, DAVID WEITZ, Harvard University — The collective movement of tissue cells is essential to fundamental biological processes in both health and disease, and occurs throughout embryonic development, during wound healing, and in cancerous tumor invasion. Most knowledge of cell migration, however, comes from single cell studies. Single cells migrate by executing cyclic processes of extension, adhesion, and retraction, during which the cell body fluctuates dramatically and the cell changes direction erratically. These sub-cellular motions must be coupled between neighbors in confluent layers, yet the influence of this coupling on collective migration is not known. In this talk we present a study of motion in confluent epithelial cell sheets. We measure collective migration and sub-cellular motions, covering a broad range of length-scales, time-scales, and cell densities. We find that that collective cell migration exhibits many behaviors characteristic of classical supercooled particulate fluids, including growing dynamic heterogeneities in the migration velocity field, non-Arrhenius relaxation behavior, and peaks in the density of states analogous to the Boson peak. These results provide a suggestive analogy between collective cell motion and the dynamics of supercooled fluids approaching a glass transition.

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