Computer simulations of self propelled spheres in 2d predict a new form of matter: an active liquid crystal. (a) The structure factor for an example active crystal showing crystallinity. (b) Instantaneous speed of particles within the system, illustrating the inhomogeneous motion within the crystal. (c) Particles in the active crystal undergo diffusion. The image shows the analog of a FRAP experiment. The particles which start in the center are labeled blue; the image to the right shows a snapshot after evolution of the dynamics.