1117-92-514 **Carina Curto***, ccurto@psu.edu. *Convex neural codes.*

Cracking the neural code is one of the central challenges of neuroscience. Typically, this has been understood as finding the relationship between single neurons and the stimuli they represent. More generally, neural activity must also reflect relationships between stimuli, such as proximity between locations in an environment. Convex codes, comprised of activity patterns for neurons with classical receptive fields, may be the brain's solution to this problem. These codes have been observed in many areas, including sensory cortices and the hippocampus. What makes a code convex? Using algebra, we can uncover intrinsic signatures of convexity and dimension in neural codes. I will report on some recent results by multiple authors, including participants in a 2014 AMS Math Research Community. (Received January 19, 2016)