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**Mosaics of retinal cells that transmit maximal information** TATYANA SHARPEE, The Salk Institute for Biological Studies — In the nervous system, visual signals are encoded by retinal ganglion cells into sequences of discrete electrical pulses termed spikes. Response regions of different ganglion cells tile the visual field and are arranged on approximately hexagonal lattice. Here we consider the optimal arrangement of response regions that would collectively allow for maximal information transmitted about the location of a point light source. We find that maximal information can be transmitted when at most three neighboring regions overlap and the average radius of response field is $\sim$0.67 of the distance between response field centers. This finding was obtained with no adjustable parameters and agrees with experimental measurements of retinal mosaics [1, 2].
[1] D.M. Dacey and S. Brace, Visual Neuroscience 9:279-90 (1992).
[2] S.H. Devries and D.A. Baylor, J Neurophysiol. 78:2048-60 (1997).

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