1128-92-111 **Neda Nategh*** (neda.nategh@montana.edu). *Multidimensional nonlinear code of the retina.*

Inhibitory interneurons are diverse in the nervous system, though most have unknown functions. In sensory systems, two broad classes of computation have been considered – linear effects that generate the classical receptive field and nonlinear modulation that mediates non-classical contextual effects. In this study, we analyze salamander retinal amacrine cells using a general approach to directly measure and model how an interneuron pathway influences computation. Using simultaneous intracellular and multielectrode recording, we measure the linear feature contributed by an amacrine pathway and nonlinear modulatory effects on other visual features. We find great diversity in the functional effects of amacrine cells, with even apparently simple, linear amacrine cells creating both linear and diverse modulatory effects such as divisive gain control, polarity reversal and shifting threshold on distinct visual features conveyed to single target ganglion cells. (Received February 19, 2017)