1128-92-83 **Zachary P Kilpatrick***, 526 UCB, Department of Applied Mathematics, University of Colorado Boulder, Boulder, CO 80309. *Maintaining spatial working memory across time in bump attractor models.*

We discuss various network mechanisms capable of making spatial working memory more robust to noise perturbation and error. The canonical example we begin with arises from classic oculomotor delayed response tasks whereby a subject must maintain the memory of a location around a circle over the period of a few seconds. Asymptotic methods are used to reduce the dynamics of a bump attractor to a stochastic differential equation whose dynamics are governed by a potential that reflects spatial heterogeneity in the network connectivity. Heterogeneity can serve to reduces the degradation of memory overtime, ultimately increasing the transfer of information forward in time. We also show that connectivity between multiple layers of a working memory can further serve to stabilize memory, especially if they possess propagation delays. We conclude by discussing recent work, where we are modeling the phenomenon whereby a previous trial's response attracts the current trial's response, sometimes called repetition bias. (Received February 14, 2017)