

Abstract Submitted  
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**Network dynamics mediated by heterogeneous topology as related to hippocampal memory management**<sup>1</sup> JANE WANG, Applied Physics, UM, Ann Arbor, MI, GINA POE, Anesthesiology, UMMS, Ann Arbor, MI, MICHAL ZOCHOWSKI, Physics, UM, Ann Arbor, MI — Hippocampal-cortical network interactions, including reactivation of recently acquired memories in the hippocampus during sleep, are key to the consolidation of memory traces to long-term storage sites in the neocortex. Network heterogeneities, in the form of regional changes in the connectivity densities of excitatory synapses, support this process in simulated hippocampal-cortical networks by regulating intrinsic network dynamics and thus mediating stimulus familiarity detection as well as selective memory consolidation. We characterize this network model by investigating dynamics due to distributed and overlapping memory structures and examine the ability of regional heterogeneities to both selectively activate in the presence of controlled stimuli and reactivate in the absence of stimuli, the former being indicative of active exploration and the latter of memory replay during sleep.

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