Some Literature

\*There is plenty more, this is a short, non-representative kick off…

Theory of Rate Models of Random Neural Networks:

All time classic –   
Chaos in Random Neural Networks   
H. Sompolinsky, A. Crisanti, and H. J. Sommers, [Phys. Rev. Lett. **61**, 259 (1988)](http://link.aps.org/doi/10.1103/PhysRevLett.61.259).

Comprehensive step by step of the previous paper –   
http://faculty.washington.edu/ms4325/assets/files/MFpLE.pdf

More Detailed -   
Stimulus-dependent suppression of chaos in recurrent neural networks   
K. Rajan, L. F. Abbott, and H. Sompolinsky. *Physical Review E* 82.1 (2010): 011903.  
Transition to chaos in random neuronal networks   
J. Kadmon, and H. Sompolinsky. "." *Physical Review X* 5.4 (2015): 041030.

Some of collaborators and mine modifications  
Dynamics of random neural networks with bistable units  
M. Stern, H. Sompolinsky, and L. F. Abbott. *Physical Review E* 90.6 (2014): 062710.  
Transition to chaos in random networks with cell-type-specific connectivity   
J. Aljadeff, M. Stern, and T.Sharpee. *Physical review letters* 114.8 (2015): 088101.

Training Random Neural Network

All time classics – The Echo State Machine  
Harnessing nonlinearity: Predicting chaotic systems and saving energy in wireless communication   
H. Jaeger, and H. Haas. *science* 304.5667 (2004): 78-80  
The FORCE Algorithm -   
Generating coherent patterns of activity from chaotic neural networks  
D. Sussillo, and L. F. Abbott. *Neuron* 63.4 (2009): 544-557.

Modifications –   
Building functional networks of spiking model neurons  
L.F. Abbott, B. DePasquale, and R. Memmesheimer. *Nature neuroscience* 19.3 (2016): 350-355.  
Robust timing and motor patterns by taming chaos in recurrent neural networks  
R. Laje, and D. V. Buonomano. *Nature neuroscience* 16.7 (2013): 925-933.

Eigenvalues of Random matrices (popular literature)

<https://en.wikipedia.org/wiki/Circular_law>

Eigenvalues in Linear Dynamics

https://en.wikipedia.org/wiki/Linear\_dynamical\_system