

1104-70-129

D. B. Mehta, J. D. Hauenstein, M. E. Niemerg* (matthew.niemerg@berkeley.edu), **N. J. Simm** and **D. E. Stariolo**. *Energy Landscape of the Finite-Size Mean-field 2-Spin Spherical Model and Topology Trivialization*.

Motivated by the recently observed phenomenon of topology trivialization of the potential energy landscapes (PELs) of several statistical mechanics models, we perform a numerical study for the finite size 2-spin spherical model using the numerical polynomial homotopy continuation method which guarantees to find all the stationary points of this model. We not only compute the average number of stationary points while changing the topology of the PEL, but also the variance, and histograms of these stationary points, and analyse the trend of the complex stationary points. We then connect the topology trivialization to two different branches of Mathematics, namely, algebraic geometry and Catastrophe theory, and argue that topology trivialization phenomenon is a fertile ground for sowing the seeds of the fruitful interdisciplinary research. (Received August 27, 2014)