

ACMS Applied Math Seminar

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Monday, Dec. 7

154 Hurley Hall

3:30 - 4:30 PM



Network of Minima of The Thomson Problem and Smale's 7th Problem

The Thomson problem is a classic physical/chemical/mathematical problem, and easy to state: find the lowest energy configuration (the global minimum) of N particles interacting via Coulomb interaction and restricted to remain on the surface of a sphere. After briefly presenting the interesting features of the energy landscape of the Thomson problem, I will show how some of the open questions for the model can be addressed by studying the network of minima of the energy landscape. I will discuss our preliminary and promising results. I will also discuss the implications of my results to a mathematical problem called Smale's 7th problem: algorithmically construct a configuration, for a given N , so that it is 'close' to the global minimum of the Thomson problem. I will then spend the remaining part of the talk to discuss interesting future directions we can pursue with the help of networks of minima.

The Department of Applied and Computational
Mathematics and Statistics

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