國立中央大學數學系
專題演講

主講人：洪立昌博士後研究員兼任助理教授 (國立台灣大學數學系)

題目：Stationary solutions to the Poisson-Nernst-Planck equations with steric effects

演講茶會: 2015年12月10日(星期四) 2:30 p.m. ~ 3:00 p.m.

茶會地點:中央大學鴻經館M306

演講時間：2015年12月10日(星期四) 3:00 p.m. ~ 4:00 p.m.

地點：中央大學鴻經館M107

Abstract:

A method based on a differential algebraic equation (DAE) approach is employed to find stationary solutions of the Poisson-Nernst-Planck equations with steric effects (PNP-steric equations). Under appropriates boundary conditions, the equivalence of the PNP-steric equations and a corresponding system of DAEs is shown. Solving this system of DAEs leads to the existence of stationary solutions of PNP-steric equations. We show that for suitable range of the parameters, the steric effect can produces infinitely many discontinuous stationary solutions. Moreover under a stronger intra-species steric effect, we prove that a smooth solution converges to a constant stationary solution. This is a joint work with Mach Nguyet Minh.

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