Titel: Compact embedding theorems for weighted spaces

Speaker: Xiuqing Chen
Beijing University of Posts and Telecommunications, China

Date: 30 January, 2013

Abstract:

Arising from the relative entropy estimate of the FENE and the Hookean model, we will systematically study the continuous embedding and (non-)compact embedding theorems for some weighted spaces on unit ball B and on R^d, for any dimension d\in\N. Our key idea is to establish the continuous embedding into another weighted-L^p spaces with a larger weight function. This is done by means of a Hardy-type inequality in a hollow ball for the FENE model. As for the results for Hookean model, this is done by using the logarithmic Sobolev inequality and the Fenchel-Young inequality. The conditions on the weight functions in most of our results are sharp.