


复旦大学数学科学学院
数学综合报告会

报告题目：**An infinite linear hierarchy for the classical Navier-Stokes quation and application**

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报告时间：2017-04-10 星期一 13:30

报告地点：光华东主楼 1501

摘要： In this talk, we will report that an infinite linear hierarchy is introduced for the homogeneous, incompressible three-dimensional Navier-Stokes equation. The Cauchy problem of the hierarchy with a factorized divergence-free initial datum is shown to be equivalent to that of the incompressible Navier-Stokes equation in $\mathcal{H}^1.$ This allows us to present an explicit formula for solutions to the incompressible Navier-Stokes equation under consideration. The obtained formula is an expansion in terms of binary trees encoding the collision histories of the ``particles" in a concise form. Precisely, each term in the summation of $n$ ``particles" collision is expressed by a n-parameter singular integral operator with an explicit kernel in Fourier space, ...

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