

On 3D vorticity equations with 2D-like initial data

Yasunori Maekawa

Division of Mathematics, Hokkaido University, Japan.

yasunori@math.sci.hokudai.ac.jp

We consider the three dimensional vorticity equations for viscous incompressible fluids over whole space. It is already known by Y. Giga and T. Miyakawa (1989) that if the initial data is sufficiently small, then a unique mild solution exists globally in time. The time global existence of solutions for not small initial data is a famous open problem. We show that if the initial data is like two dimensional in a suitable sense, then a unique mild solution exists globally in time.