GLOBAL WELL-POSEDNESS OF THE NAVIER-STOKES EQUATIONS OF AN
INHOMOGENEOUS FLUID IN THE HALF-SPACE WITH INFLOW
BOUNDARY CONDITION

TONGKEUN CHANG AND BUM JA JIN

In this paper, we study the global solvability of the incompressible Navier-Stokes equations of an inhomogeneous fluid in the half-space with inflow boundary condition. We prove the existence of a solution in $L^q(L^p)$ framework when the initial density is close to a positive constant, and the initial and boundary data of velocity are in some critical function spaces. Uniqueness holds true if the given data have slightly more regularity.

Department of Mathematics, Chosun University, Kwangju, South Korea
Email address: chang7357@yonsei.ac.kr

Department of Mathematics, Mokpo National University, Muan-gun 534-729, South Korea
Email address: bumja@jins.mokpo.ac.kr