1. Abstract

In this paper, we study the initial-boundary value problem of the Navier-Stokes equations in half-space. Let a solenoidal initial velocity be given in the function space \( \dot{B}^{-1+n/p}_{\infty,0}(\mathbb{R}_+^n) \) for \( \frac{n}{3} < p < n \). We prove the global in time existence of weak solution \( u \in L^\infty(0, \infty; \dot{B}^{-1+n/p}_{p,0}(\mathbb{R}_+^n)) \), when the given initial velocity has small norm in function space \( \dot{B}^{-1+n/p}_{p,0}(\mathbb{R}_+^n) \), where \( \frac{n}{3} < p < n \).