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***On non-homogeneous viscous incompressible fluids. Existence of regular solutions***

Comment.Math.Univ.Carolinae 38,4 (1997) 697-715.

**Abstract:** We consider the flow of a non-homogeneous viscous incompressible fluid which is known at an initial time. Our purpose is to prove that, when  $\Omega$  is smooth enough, there exists a local strong regular solution (which is global for small regular data).

**Keywords:** Navier-Stokes equations

**AMS Subject Classification:** 35Q30, 76D05