

**On the Stokes problem with an initial data in L^1 :
an application of the results to *a priori* estimates**

P. Maremonti

Dipartimento di Matematica, Caserta. paolo.maremonti@unina2.it

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Abstract. We study the initial boundary value problem associated to the Stokes system. We assume the initial data belonging to the Lebesgue space L^1 . We develop a suitable approach to discuss the existence, uniqueness and continuous dependence on the data. As matter of course, we also consider the case of the Lebesgue space L^p , $p \in (1, \infty)$. We also consider an application of the results proving *a priori* estimate involving the Stokes operator. This estimate is of the same kind of the so called Xie-Heywood estimates in exterior domains.