

Boundary value problems for the Stokes equations in an infinite layer

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Abstract

This contribution is about a long term cooperation with Konstantin Pileckas and Sebastian Rauchhaus and it contains some results about problems that were solved but also one problem is presented which we could not solve up to now. Already 1999 Nazarov and Pileckas [1] published a paper about asymptotic behavior of solutions to the stationary Stokes Dirichlet Problem in a layer like domain. Apart from the explicit expressions for the asymptotics this paper also included precise estimates for the remainder in appropriate weighted Sobolev spaces. In this context it is quite natural to think about generalizations like what about

- the nonlinear case?
- existence and uniqueness of solutions in this special form?
- instationary problems?
- general boundary conditions?

In this lecture I will focus on the linear Stokes problem up to the point where we could not come around an obstacle.

Keywords: Stokes problems, layer like domain, asymptotics of solutions

References

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