

Abstrakt anglicky

In the presented work, we study the existence and uniqueness of solutions to the generalized Stokes problem. We, further, focus on the higher differentiability and the Hölder continuity of solutions to the generalized Stokes and generalized Navier-Stokes system. We reach the full regularity in an arbitrary dimension for a linear case, while in a nonlinear case we work only in dimensions $d = 2, 3$. In dimension $d = 2$ we are able to proof the full regularity of solution, in dimension $d = 3$ we obtain only a partial regularity. All main results are introduced in the first section.