

On the higher integrability of weak solutions to the generalized Stokes system with bounded measurable coefficients

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Abstract: We consider a generalized Stokes and Navier-Stokes problem. The elliptic term is assumed to have form $\operatorname{div}(AD(u))$, where the matrix function A is uniformly positive definite, measurable and bounded.

Using a Meyers type estimate we improve the integrability of gradients of local weak solutions to a generalized Stokes problem.

We also show that in the case of planar motion the integrability of local weak solution to generalized Navier Stokes system can be improved.

The results can be combined to improve integrability of solution gradient to generalized Navier Stokes system in 2D.