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CIS-406196

[Zajączkowski, Wojciech](#) Olga Alexandrovna Ladyzhenskaya. [Topological Methods in Nonlinear Analysis](#) 26 (2005) , no. 1 , 5 —7 .

Article

In January 2004 the world mathematical community lost Professor Olga Alexandrovna Ladyzhenskaya who was a great mathematician and a member of several Academies of Science. She made significant and important contributions to the area of partial differential equations, particularly the Navier--Stokes equations, nonlinear elliptic and parabolic equations.

CIS-306072

[Lieberman, Gary M.](#) The natural generalization of the natural conditions of Ladyzhenskaya and Ural'tseva. [Proceedings of the Centre for Mathematics and its Applications](#) 1990 (1990) .

Article

CIS-433270

[Ivochkina, N.](#) ; [Ladyzhenskaya, O.](#) On parabolic problems generated by some symmetric functions of the eigenvalues of the Hessian. [Topological Methods in Nonlinear Analysis](#) 4 (1994) , no. 1 , 19 —29 .

Article

CIS-432051

Ivochkina, Nina ; Ladyzhenskaya, Olga On classical solvability of the first initial-boundary value problem for equations generated by curvatures. [Topological Methods in Nonlinear Analysis](#) 11 (1998) , no. 2 , 375 —395 .

[Article](#)

CIS-433330

Ivochkina, N. ; Ladyzhenskaya, O. Estimation of the second derivatives for surfaces evolving under the action of their principal curvatures. [Topological Methods in Nonlinear Analysis](#) 6 (1995) , no. 2 , 265 —282 .

[Article](#)

CIS-291727

Woukeng, Jean Louis Homogenization in algebras with mean value. [Banach Journal of Mathematical Analysis](#) 9 (2015) , no. 2 , 142 —182 .

[Article](#)

In several works, the theory of strongly continuous groups is used to build a framework for solving random homogenization problems. Following this idea, we present a detailed and comprehensive framework enabling one to solve homogenization problems in algebras with mean value, regardless of whether they are ergodic or not. We also state and prove a compactness result for Young measures in these algebras. As an important achievement we study the homogenization problem associated with a stochastic Ladyzhenskaya model for incompressible viscous flow, and we present and solve a few examples of homogenization problems related to nonergodic algebras.

CIS-302763

Gao, Zhenhua ; Jiang, Song ; Li, Jing Global Helically Symmetric Solutions for the Stokes Approximation Equations for Three-Dimensional Compressible Viscous Flows. [Methods and Applications of Analysis](#) 12 (2005) , no. 2 , 135 —152 .

[Article](#)

We prove the existence and uniqueness of global strong solutions to the Cauchy problem of the compressible Stokes approximation equations for any (specific heat ratio) $\gamma > 1$ in \mathbf{R}^3 when initial data are helically symmetric. Moreover, the large-time behavior of the strong solution and the existence of global weak solutions are obtained simultaneously. The proof is based on a Ladyzhenskaya interpolation type inequality for helically symmetric functions in \mathbf{R}^3 and uniform a priori estimates. The present paper extends Lions' and Lu, Kazhikhov and Ukai's existence theorem in \mathbf{R}^2 to the three-dimensional helically symmetric case.

CIS-343119

Málek, J. ; Pražák, D. ; Steinhauer, M. On the existence and regularity of solutions for degenerate power-law fluids. [Differential Integral Equations](#) 19 (2006) , no. 4 , 449 —462 .

[Article](#)

We study time-dependent flows of incompressible degenerate power-law fluids characterized by the power-law index $p - 2$ with $p > 2$. In this case, the generalized viscosity vanishes as (the modulus of) the shear rate tends to zero. We prove global-in-time existence of a weak solution if $p > \max\{\frac{3d-4}{d}, 2\}$. This improves the range $p > \frac{3d+2}{d+2}$ for which the existence result was obtained by O.A. Ladyzhenskaya and J.L. Lions, via standard monotone operator theory. Since we apply higher differentiability techniques, certain regularity results are also established. The key step of the proof is an estimate of the velocity gradient in a suitable Nikol'ski space. To make the presentation of the method transparent, we restrict ourselves to the spatially periodic problem. A possible extension of the approach to no-slip boundary conditions is however discussed as well.

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