

1. Record Nr.	UNINA9910633925403321
Titolo	Collected papers in honor Yoshihiro Shibata // Tohru Ozawa, editor
Pubbl/distr/stampa	Cham, Switzerland : , : Birkhauser, , [2023] ©2023
ISBN	9783031192524 9783031192517
Descrizione fisica	1 online resource (396 pages)
Disciplina	531
Soggetti	Continuum mechanics Differential equations Mecànica dels medis continus Equacions diferencials Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Intro -- Contents -- Preface -- References -- Global Wellposedness of the Primitive Equations with Nonlinear Equation of State in Critical Spaces -- Abstract -- 1. Introduction -- 2. Preliminaries -- 3. Typical Ocean Densities -- 3.1. Linear Density -- 3.2. Equation of State by TEOS-10 -- 3.3. Equation of State by McDongall-Jacket-Wright-Feistel -- 3.4. Equation of State by UNESCO-80 -- 4. Main Result -- 5. Estimates for the Local Existence -- 6. A Priori Estimates -- 7. Proof of Theorem 4.1 -- 7.1. Local Wellposedness -- 7.2. Global Wellposedness -- Appendix A. Semilinear Evolution Equations and Maximal Lr-Regularity -- References -- On the Global Existence for the Compressible Euler-Riesz System -- Abstract -- Introduction -- 1. Main Results -- 2. A Local in Time Result for Non-decaying Data -- 2.1. A Priori Estimates -- 2.2. About the Proof of Existence -- 2.3. Uniqueness -- 3. A Global Existence Result -- 3.1. A Priori Estimates -- 3.2. Existence -- 3.3. The Proof of Uniqueness -- 3.4. Instability of Nontrivial Static Solutions in the Attractive Case -- 4. About Ideal Gases -- 4.1. Local Existence -- 4.2. Global Existence -- 4.3. Remark on Static Solutions -- Appendix -- Acknowledgements -- References --

Rotation Problem for a Two-Phase Drop -- Abstract -- 1. Introduction -- 2. Linear Problem -- 3. The Nonlinear Problem -- References -- On the Stokes-Type Resolvent Problem Associated with Time-Periodic Flow Around a Rotating Obstacle -- Abstract -- 1. Introduction -- 2. Notation -- 3. Main Results -- 4. The Resolvent Problem in the Whole Space -- 5. The Resolvent Problem in an Exterior Domain -- 6. The Time-Periodic Problem -- References -- Euler System with a Polytropic Equation of State as a Vanishing Viscosity Limit -- Abstract -- 1. Introduction -- 2. Preliminary Material -- 2.1. Mathematical Theory of the Closed System. 2.2. Transport Coefficients -- 2.3. Equation of State -- 2.4. Relative Energy -- 3. Main Results -- 3.1. Unconditional Convergence in the Absence of Boundary Layer -- 3.2. Conditional Result: Viscous Boundary Layer -- 4. Consistency of the Vanishing Dissipation/Radiation Approximation -- 4.1. Temperature for the Euler System -- 4.2. Consistency -- 4.2.1. Viscous Stress Consistency -- 4.2.2. Heat Flux Consistency -- 4.2.3. Radiation Entropy Convective Flux Consistency -- 5. Convergence -- 5.1. Velocity Regularization -- 5.2. Application of the Relative Energy Inequality -- 5.3. Integrals Controlled by the Consistency Estimates -- 5.4. Integrals Independent of the Boundary Layer -- 5.5. Boundary Layer -- 5.5.1. Viscous Stress -- 5.5.2. Convective Term -- 5.6. Strong Convergence -- References -- On the Hydrostatic Approximation of Compressible Anisotropic Navier-Stokes Equations-Rigorous Justification -- Abstract -- 1. Introduction -- 2. Preliminaries -- 3. Main Result -- 3.1. Dissipative Weak Solutions of CNS -- 3.2. Strong Solution of CPE -- 3.3. Versatile Relative Entropy Inequality -- 3.4. Main Result -- 4. Convergence -- 4.1. Main Idea of Proof -- 4.2. Step 1 -- 4.3. Step 2 -- 4.4. Step 3 -- Acknowledgements -- References -- A Route to Chaos in Rayleigh-Bénard Heat Convection -- Abstract -- 1. Introduction -- 2. linear Stability and Critical Rayleigh Number -- 3. Routes to Chaos -- 3.1. Roll Solutions on Bifurcation Branches in the Large -- 3.2. Time Evolution of Roll Solutions and the Secondary Hopf Bifurcation -- 3.3. Concluding Remark -- Acknowledgements -- References -- Existence of Weak Solution to the Nonstationary Navier-Stokes Equations Approximated by Pressure Stabilization Method -- Abstract -- 1. Introduction -- 2. Notations and Main Results -- 3. Preliminaries -- 4. Proof of Main Results -- Acknowledgements -- References. Resolvent Estimates for a Compressible Fluid Model of Korteweg Type and Their Application -- Abstract -- 1. Introduction -- 2. Notation and Main Results -- 2.1. Notation -- 2.2. Main Results -- 3. Preliminaries -- 3.1. Some Inequalities -- 3.2. Compact Embeddings -- 3.3. Results of the Large Resolvent Parameter -- 3.4. Maximal Regularity -- 4. The Problem in Bounded Domains -- 4.1. Existence of Solutions -- 4.2. Uniqueness of Solutions -- 4.3. A Priori Estimates -- 4.4. Proof of Theorem 2.5 -- 4.5. Proof of Theorem 2.6 -- 5. The Whole Space Problem -- 5.1. Representation Formulas of Solutions -- 5.2. Estimates of  $P(\cdot)$  for  $\epsilon=0$ . -- 5.3. Estimates of  $P(\cdot)$  for  $\epsilon>0$ . -- 5.4. Proof of Theorem 5.1 -- 6. The Problem in Exterior Domains -- 6.1. Construction of Parametrix -- 6.2. Uniqueness of Solutions -- 6.3. A Priori Estimates -- 6.4. An Auxiliary Problem -- 6.5. Proof of Theorem 2.1 -- 7. Application to a Nonlinear Problem -- 7.1. Generation of an Analytic  $C_0$ -Semigroup -- 7.2. Maximal Regularity with Exponential Stability -- 7.3. Estimates of Nonlinear Terms -- 7.4. Global Solvability of the Nonlinear Problem -- References -- Rate of the Enhanced Dissipation for the Two-jet Kolmogorov Type Flow on the Unit Sphere -- Abstract -- 1. Introduction -- 2. Preliminaries -- 3. Analysis of the Linearized Operator -- 3.1. Settings and Basic Results -- 3.2.

Verification of Assumption 4.6 -- 3.3. Estimates for the Semigroup --  
4. Abstract Results -- 5. Appendix: Basic Formulas of Differential  
Geometry -- Acknowledgements -- References -- Reacting Multi-  
component Fluids: Regular Solutions in Lorentz Spaces -- Abstract --  
1. Introduction -- 2. Functional Spaces and the Main Result -- 3.  
Auxiliary Results and Linear Theory -- 4. A Priori Estimates -- 4.1.  
Velocity Bounds -- 4.2. Estimates for the Density -- 5. Existence --  
Acknowledgements -- References.

Global Well Posedness for a Q-tensor Model of Nematic Liquid Crystals  
-- Abstract -- 1. Introduction -- 2. Maximal  $L_p$ - $L_q$  Regularity -- 2.1.  
 $\mathcal{R}$ -boundedness of Solution Operators -- 2.2. A Proof of  
Theorem 2.1 -- 3. Decay Property of Solutions to the Linearized  
Problem -- 3.1. Decay Estimates for  $d$  -- 3.2. Decay Estimates for  $U$   
and  $\mathbb{Q}$  -- 3.2.1. Analysis of Low Frequency Parts -- 3.2.2.  
Analysis of High Frequency Parts -- 4. A Proof of Theorem 1.1 -- 4.1.  
Analysis of Time Shifted Equations -- 4.2. Analysis of Compensation  
Equations -- 4.2.1. Estimates of Spatial Derivatives in  $L_p$ - $L_q$  -- 4.2.2.  
Estimates of Time Derivatives in  $L_p$ - $L_q$  -- 4.2.3. Estimates of the Lower  
Order Term in  $L_{\infty}$ - $L_q$  -- 4.3. Conclusion -- References -- Maximal  
Regularity for Compressible Two-Fluid System -- Abstract -- 1.  
Introduction -- 1.1. Notation -- 1.2. Main Results -- 1.3. Discussion --  
2. Lagrangian Coordinates -- 3. Local Well-Posedness -- 3.1.  
Linearization Around the Initial Condition -- 3.2. Maximal Regularity --  
3.3. Preliminary Estimates -- 3.4. Estimate of the Right Hand Side of  
(3.3) -- 3.5. Contraction Argument-Proof of Theorem 1.1 -- 4. Global  
Well-Posedness -- 4.1. Linearization Around the Constant State -- 4.2.  
Exponential Decay -- 4.3. Bounds for Nonlinearities -- 4.4. Proof of  
Theorem 1.2 -- Appendix -- Acknowledgements -- References --  
Steady Compressible Navier-Stokes-Fourier Equations with Dirichlet  
Boundary Condition for the Temperature -- Abstract -- 1. Introduction  
-- 2. Formulation of the Problem: Main Result -- 3. Weak Compactness  
of Weak and Variational Entropy Ballistic Solutions -- 3.1. A Priori  
Estimates -- 3.2. Weak Compactness -- 4. Construction of the Solution  
-- References -- A Slightly Supercritical Condition of Regularity of  
Axisymmetric Solutions to the Navier-Stokes Equations -- Abstract --  
1. Introduction -- 2. Auxiliary Facts.  
3. Proof of Proposition 1.4 -- 4. Proof of Theorem 1.3 --  
Acknowledgements -- References -- Spatial Pointwise Behavior of  
Time-Periodic Navier-Stokes Flow Induced by Oscillation of a Moving  
Obstacle -- Abstract -- 1. Introduction -- 2. Results -- 2.1. Notation  
-- 2.2. Evolution Operator -- 2.3. Main Results -- 3. Proof of Theorem  
2.1 -- 3.1. Weak Form of the Integral Equation -- 3.2. Regularity in  $x$   
-- 3.3. Regularity in  $t$  and the Pressure -- 4. Proof of Theorem 2.2 --  
4.1. Reduction to the Whole Space Problem -- 4.2. Integral Equation for  
the Whole Space Problem -- 4.3. Reconstruction Procedure --  
References.

---