Curriculum Vitae

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Employment   2024. 03 -: Assistant professor, Ajou University

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Fields of Interest   Mathematical fluid dynamics, Singularity formation, Asymptotic stability, Singular limit problem

Education   2014. 03 - 2021. 08: Ph.D, Department of Mathematics at Chung-Ang University,
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2010. 03 - 2014. 02: B.S, Department of Mathematics at Chung-Ang University

Grants and Awards   *The 12th S-Oil Excellent Dissertation Award (Second Prize), 2022*

National Research Foundation of Korea (RS-2024-00360798), 2024–2029

Young Mathematician Award, KMS, 2025

Publications   (with R. Takada and H. Ohyama) Asymptotics for the inviscid rotating stably stratified Boussinesq equations in a 3D layer, Nonlinearity, to appear.

(with Y.-P. Choi and J. Jung) On well/ill-posedness for the generalized surface quasi-geostrophic equations in Hölder spaces, J. Differential Equations 443, 113521.

(with I.-J. Jeong and Y. Yao) On wellposedness of α-SQG in the half-plane, Trans. Amer. Math. Soc., 378 (2025), 421–446.

(with Y.-P. Choi and J. Jung) A revisit to the pressureless Euler–Navier–Stokes system in the whole space and its optimal temporal decay, J. Differential Equations 401, 231-281.

(with M. J. Jo) Quantitative asymptotic stability of the quasi-linearly stratified densities in the IPM equation on the three fundamental domains, J. Funct. Anal. 286 (11), 110401.

(with M. J. Jo and J. Lee) Non-convergence of the rotating stratified flows toward the quasi-geostrophic dynamics, SIAM Journal on Mathematical Analysis 56 (3), 3357-3385.

(with I.-J. Jeong) "Strong illposedness for SQG in critical Sobolev spaces", Anal. PDE 17 (1), 133-170.

(with J. Jang) "Asymptotic stability and sharp decay rates to the linearly stratified Boussinesq equations in horizontally periodic strip domain", Calc. Var. PDE 62 (2023), 141.

(with I.-J. Jeong) "A simple proof of ill-posedness for incompressible Euler equations in critical Sobolev spaces", J. Funct. Anal. 283 (2022), no. 10, Paper No. 109673.

(with J. Lee) "Stratified Boussinesq equations with a velocity damping term", Nonlinearity 35 (2022), 3059.

"Rotational effect on the asymptotic stability of the MHD system", J. Differential Equations 319 (2022), 288-311.

(with D. Chae and J. Wolf) "On Liouville type theorems for the stationary MHD and the Hall-MHD systems in $\mathbb{R}^3$", Z. Angew. Math. Phys. 73 (2022), no. 2, Paper No. 66.

(with J. Ahn and J. Lee) "Coriolis effect on temporal decay rates of global solutions to the fractional Navier–Stokes equations", Math. Ann. 383 (2022), 259–289.

(with D. Chae and J. Wolf) "On Liouville type theorems in the stationary non-Newtonian fluids", J. Differential Equations 302 (2021), 710–727.

(with J. Ahn and J. Lee) "Global solutions to 3D incompressible rotational MHD system", J. Evol. Equ. 21 (2021), 235–246.

(with E. Jeong and J. Lee) "Wellposedness and stabilization in a two dimensional two-species aerotaxis-Navier-Stokes system", Nonlinear Anal-

ysis: Real World Applications 57 (2021), 103187.

(with E. Jeong and J. Lee) "Local Well-Posedness and Blow-Up for the Solutions to the Axisymmetric Inviscid Hall-MHD Equations", Advances in Mathematical Physics 2018 (2018), 1-16.

(with J. Ahn, K. Kang and J. Lee) "Lower bound of mass in a chemotactic model with advection and absorbing reaction", SIAM Journal on Mathematical Analysis 49(2) (2017), 723-755.

Preprints	(with I.-J. Jeong and H. Miura) Wellposedness of inviscid SQG in the half-plane

(with H. In and D. Kim) Asymptotic stability of the 2D temperature-dependent tropical climate model with the sharp decay rates

(with J. Lee and D. Kim) Convergence and non-convergence phenomena in Euler-Maxwell to MHD transitions

(with J. Ahn and J. Kim) Stability and instability of constant steady states for the classical parabolic–parabolic Keller–Segel model

(with J. W. Jang) On the axially symmetric solutions to the spatially homogeneous Landau equation

(with M. J. Jo and J. Lee) Global well-posedness of the partially damped 2D MHD equations via a direct normal mode method for the anisotropic linear operator

(with M. J. Jo) Velocity blow-up in $C^1 \cap H^2$ for the 2D Euler equations