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Global well-posedness of the boundary layer equations from Euler-α equations in half plane.
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Summary: In this paper, we start from the asymptotic expansions of Euler-α equations and derive Prandtl type equations. We also obtain the local existence and uniqueness of the solutions to Prandtl type equations by abstract Cauchy-Kovalevskaya theorem. Furthermore, we discuss the formal solution of the vorticity equation of Prandtl equations, then one can verify that this solution is an exact and global-in-time solution of Prandtl type equations.

MSC:
35Q31 Euler equations
35A10 Cauchy-Kovalevskaya theorems

Keywords:
Euler-α equations; Prandtl type equation; abstract Cauchy-Kovalevskaya theorem

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