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Autonomous solutions of two dimension incompressible ideal fluid equations in angular symmetric domains. (Chinese. English summary) Zbl 07448409

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Summary: Starting from separation of variables, explicit autonomous solutions for the 2D Euler and Boussinesq equations are obtained on angular symmetric planar domains including disks, annulus, cone, fan-shaped domains, the half-plane, etc. The hyperbolic points of Euler flows we obtained can be arbitrarily dense. Finding explicit solutions has always been important in PDE. Also, explicit solutions can provide insights in the investigations of various theoretical questions.

MSC:

35Q31 Euler equations
35Q35 PDEs in connection with fluid mechanics
76B03 Existence, uniqueness, and regularity theory for incompressible inviscid fluids

Keywords:

equations of ideal incompressible fluid; Euler equations; Boussinesq equations; autonomous solutions; angular symmetric domains

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