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Solvability of boundary value problem for incompressible Euler equation in a permeable 3D domain.

The normal velocity of a fluid's flow through the fixed permeable domain defines natural partition of domain's boundary on the rigid wall, input and output. Our problem is to find a steady Eulerian flow having prescribed normal velocity at the whole boundary and having prescribed normal vortex and Bernoulli function at the input. We prove the solvability of this problem for data allowing rotational symmetry. For constant input value of Bernoulli function we prove the existence of helical (Beltrami) solution having parallel velocity and vortex. The work was supported by RFBR, grant 98-01-00945.