Lp theory for Boussinesq system with Dirichlet boundary conditions

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© 2018, © 2018 Informa UK Limited, trading as Taylor & Francis Group.We consider the stationary Boussinesq system with non-homogeneous Dirichlet boundary conditions in a bounded domain ? ? R3 of class C1, 1 with a possibly disconnected boundary. We prove the existence of weak solutions in W1,p(?), strong solutions in W2,p(?) and very weak solutions in Lp(?) of the stationary Boussinesq system by assuming that the fluxes of the velocity are sufficiently small. Finally, as it is expected, we obtain the uniqueness of the solution by considering small data.