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On the existence of steady-state solutions to the Navier-Stokes system for large fluxes

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Abstract. In this paper we deal with the stationary Navier-Stokes problem in a domain Ω with compact Lipschitz boundary $\partial\Omega$ and datum $\boldsymbol{a}$ in Lebesgue spaces. We prove existence of a solution for arbitrary values of the fluxes through the connected components of $\partial\Omega$, with possible countable exceptional set, provided $\boldsymbol{a}$ is the sum of the gradient of a harmonic function and a sufficiently small field, with zero total flux for Ω bounded.

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