

# UNIFORM GLOBAL WELL-POSEDNESS OF THE NAVIER-STOKES-CORIOLES IN A NEW CRITICAL SPACE

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## Resumo/Abstract:

We prove global well-posedness for the Navier-Stokes-Coriolis system (NSC) in a critical space whose definition is based on Fourier transform, namely the Fourier-Besov-Morrey space  $\mathcal{FN}_{1,\mu,\infty}^{\mu-1}$  with  $0 < \mu < 3$ . The smallness condition on the initial data is uniform with respect to the angular velocity  $\omega$ . Our result provides a new class for the uniform global solvability of (NSC) and covers some previous ones. For  $\mu = 0$ , (NSC) is ill-posedness in  $\mathcal{FN}_{1,\mu,\infty}^{\mu-1}$  which shows the optimality of the results with respect to the space parameter  $\mu > 0$ . The lack of Hausdorff-Young inequality in Morrey spaces suggests that there are no inclusion relations between  $\mathcal{FN}_{1,\mu,\infty}^{\mu-1}$  and the largest previously known classes of Kozono-Yamazaki (Besov-Morrey space) and Koch-Tataru ( $BMO^{-1}$ ). So, taking in particular  $\omega = 0$ , we obtain a critical initial data class that seems to be new for global existence of solutions of the Navier-Stokes equations (3DNS).