

Analyticity in space-time of solutions to the Navier-Stokes equations via a parameter trick based on maximal regularity

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Abstract. We consider analyticity in the space and time variables of solutions to the Navier-Stokes equations, using the method of the “parameter trick”. Exploiting the maximal Lorentz regularity of the Stokes equations, we prove that the solution of the Navier-Stokes equations in the Serrin class is real analytic in the time variable. Our method is also applicable to the proof of analyticity, in both space and time variables, of solutions to the problem in the whole space problem.

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