

Seminar of the Work Group
Nonlinear Partial Differential Equations
SS 22

Speaker: Dr. Olli Saari
May 10th, 2022, 14:00 - 15:00
Seminar room: 3.061

A right inverse of the divergence in time-dependent non-cylindrical domains

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Abstract

Consider an open and connected set in the $(1 + n)$ -dimensional space time. I discuss a construction of a right inverse of the (spatial) divergence that respects vanishing boundary values at the lateral boundary. The domain is assumed to be Hölder regular both in time and space variables. Depending on the actual regularity, a priori estimates in Sobolev spaces of positive and negative order can be proved. In particular, we show that the construction exhibits a non-trivial amount of regularity in time variable, which is of interest from the point of view of fluid mechanics. This is based on a joint work with S. Schwarzacher.