Tent space maximal regularity for the Stokes operator on the half-space

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Introduced by Coifman, Meyer and Stein in 1984, tent spaces play an important role in harmonic analysis, see, e.g., [1]. In their paper, Auscher and Frey provide an alternative proof to the famous result of Koch and Tataru on the Navier-Stokes equations, c.f., [2].

It is then a natural and interesting question whether it is possible, using the ideas of Auscher and Frey, to establish the Koch-Tataru Theorem in the presence of a boundary, e.g., on the half-space. One step in that proof is the boundedness of the maximal regularity operator on the tent space $\mathrm{T}^{\infty,2}$.

In this talk I will present an approach to this result in the half-space setting and extensions thereof to different (weighted) tent spaces. This is joint work with Patrick Tolksdorf.

References

[1] P. Auscher and D. Frey. *On the well-posedness of parabolic equations of Navier-Stokes type with* BMO^{-1} *data.* J. Inst. Math. Jussieu **16** (2017), no. 5, 947–985.

[2] H. Koch and D. Tataru. *Well-posedness for the Navier-Stokes equations.* Adv. Math. **157** (2001), no. 1, 22–35.