

# Time-periodic maximal $L^p$ regularity by $\mathcal{R}$ -boundedness in the context of incompressible viscous flows

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A nowadays well-established method to derive maximal  $L^p$  regularity for (linear) parabolic initial-value problems is based on the deduction of suitable  $\mathcal{R}$ -bounds for the associated resolvent problems. This talk focuses on a method how to use those  $\mathcal{R}$ -bounds to obtain maximal regularity for time-periodic problems, even if  $\mathcal{R}$ -boundedness is not available on the whole imaginary axis. The result is based on vector-valued Fourier multiplier theorems, and it can be applied to establish solutions to the Navier–Stokes equations in bounded as well as exterior domains with periodically moving boundaries.