

**Martin Schäfer**

*Technical University Chemnitz, Germany*

**Besov-type function spaces on  $[0, 1]^d$  based on  
the half-period cosine system**

In the setting of periodic functions, which can be modelled as functions on the  $d$ -torus  $\mathbb{T}^d \cong [0, 1]^d$ , the classical Fourier system is the system of choice for many applications. Turning to non-periodic functions on  $[0, 1]^d$ , this system is not so well-suited any more as exemplified by the Gibbs phenomenon at the boundary. Hence, in the setting of non-periodic functions, other systems have been considered. One such system is the half-period cosine system, which occurs naturally as the eigenfunctions of the Laplace operator under homogeneous Neumann boundary conditions. In this talk, we introduce and analyze associated function spaces of Besov-type, which generalize earlier concepts in this direction.