



## Analysis Seminar

**Title:** Projection constants of Banach spaces of polynomials

**Speaker:** Andreas Defant (Oldenburg)

**Date:** Wed 1st November 2023 at 2:00PM

**Location:** Science East E1.19

**Abstract:** We discuss recent joint work with D. Galicer, M. Mansilla, M. Mastaglio, and S. Muro.

The general problem we address is to develop new methods within the study of projection constants of Banach spaces of multivariate polynomials. The relative projection constant  $\lambda(X, Y)$  of a subspace  $X$  of a Banach space  $Y$  is the smallest norm among all possible projections on  $Y$  onto  $X$ , and the (absolute) projection constant  $\lambda(X)$  is the supremum of all relative projection constants of  $X$  taken with respect to all possible super spaces  $Y$ . This is one of the most significant notions of modern Banach space theory. We develop an abstract setting, which allows to handle in a unified way a wide variety of Banach spaces of multivariate polynomials - including trigonometric polynomials on compact abelian groups, polynomials on Boolean cubes  $\{-1, +1\}^n$ , Dirichlet polynomials on the complex plane, and polynomials on  $\ell_p^n$ ,  $p = 1, 2, \infty$ . Finally, we discuss new information on the projection constant of the trace class on  $\ell_2^n$ .