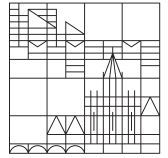# KWIM-Festtage

celebrating the end of the project
Konstanz Women in Mathematics

Projective limits techniques
for the infinite dimensional moment problem

Patrick Michalski
University of Konstanz, Germany

Abstract. In this poster, we deal with a general version of the classical moment problem. More precisely, given a unital commutative $\mathbb{R}$–algebra A, we ask whether a linear functional on A can be represented by an integral w.r.t. a Radon measure on the character space of A equipped with the weak topology. We approach this problem by constructing the character space as a projective limit of a family of measurable spaces. This technique together with the classical Prokhorov Theorem allows to generalize results already known for finitely generated algebras to infinitely generated ones (even uncountably generated). This applies for example to A being the polynomial ring in an arbitrary number of variables or the symmetric algebra on some locally convex $\mathbb{R}$–vector space, providing alternative proofs for some known results for the infinite dimensional moment problem.

This is a joint work with Maria Infusino, Salma Kuhlmann and Tobias Kuna.