Bernoullis Tafelrunde

Graduate Student Seminar

Thursday, 11 October 2018, 12:15-13:00
Seminarraum 05.002, Spiegelgasse 5

Maria Ahrend

Universität Basel

On variational methods in Fourier analysis

Abstract

In this thesis, we explore some state-of-the-art variational methods in Fourier Analysis. More specifically, we will study optimizers for the Tomas-Stein restriction inequality on a sphere. We will give a characterization of all maximizers in dimension $N = 3$, in particular we will see that they are of the form $\omega \mapsto ce^{i\xi\omega}$ for some $c \in \mathbb{C}$ and $\xi \in \mathbb{R}^3$. In dimension $N = 2$ we will establish that constants are local extremizers. We will also shed light on the general case and find a sufficient condition for the existence of extremizers and the precompactness of maximizing sequences.