# Bernoullis Tafelrunde

Math Students and PhDs Seminar

**Thursday, 23.03.2026, 12:15-13:00**
Seminarraum 05.001, Spiegelgasse 5


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# Frequency Functions: From Unique Continuation to Singular Sets


Abstract

Frequency functions provide a quantitative way to measure how fast a function vanishes. For harmonic maps, the key fact is that the frequency function is monotone, and this already has remarkable consequences: it leads to quantitative unique continuation and prevents solutions from vanishing too rapidly. In particular, touching sets of harmonic functions are necessarily small, with codimension at least two.

In this talk, we use this viewpoint as a guiding principle for more geometric problems. In minimal surface theory, singularities arise from sheets touching each other, suggesting that similar ideas should apply. We first examine the linear model given by multi-valued Dirichlet minimizers, where frequency methods again yield the same dimension bounds for the singular set, and then briefly discuss why extending this approach to minimal surfaces is substantially more subtle.


*Scan before 22.04.2026 at 16:00 to register for lunch*