

# TECHNIQUES IN ANALYTIC NUMBER THEORY AND THE LINDELÖF HYPOTHESIS

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ABSTRACT. We provide a survey of some modern techniques in analytic number theory used to approach the Lindelöf hypothesis for families of  $L$ -functions.

1. A ROADMAP & OVERVIEW

2. MOTIVATIONS

3. THE LINDELÖF HYPOTHESIS

The Classical Lindelöf Hypothesis.

The Lindelöf Hypothesis in Aspects.

Approach: Subconvexity.

4. THE LINDELÖF HYPOTHESIS ON AVERAGE

Families of  $L$ -functions.

Random Matrix Theory Conjectures.

Approach: Moments.

Approach: Multiple Dirichlet Series. :

REFERENCES

[1]