

Analysis Seminar

- **Title:** Examples of Universal Dirichlet series
- **Speaker:** Athanasios Kouroupis (e Norwegian University of Science and Technology)
- Date: Mon 22nd April 2024 at 3:00PM
- Location: To be announced

Abstract: Universality refers to the phenomenon where an object, via a countable process, yields approximations to all members of some collection of interest.

In our case this object will be a Dirichlet series of the form $\sum_{n} a_n e^{-s\lambda_n}$ and the approximation will happen via vertical translations.

In 1975 Voronin proved that the Riemann zeta function, $\zeta(s) = \sum_{n \ge 1} n^{-s}$, $\Re s > 1$ is universal in the critical strip $\{\frac{1}{2} < \Re s < 1\}$. After the seminal work of Voronin on the Riemann zeta function a lot of authors studied Dirichlet series in terms of their universal properties.

The aim of this talk is to give examples of convergent universal objects such as the alternating prime zeta function $P(s) = \sum (-1)^n p_n^{-s}$ on the critical strip.

Essentially, we are going to prove that for every compact subset with connected complement K of Ω , the vertical translations of the form $P(\cdot + it)$ can approximate uniformly in K every function f, which is continuous on K and holomorphic in the interior.

This is joint work with Frédéric Bayart.

Examples of Universal Dirichlet series