A short introduction to the (modern) theory of Dirichlet series

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Abstract

Ordinary Dirichlet series, $\sum_{n \geq 1} a_n n^{-s}$, have been studied quite intensively for 150 years, especially for their links with analytic number theory. Recently, there has been renewed interest in these series, starting from a seminal paper of Hedenmalm, Lindqvist and Seip which introduced the Hardy space of Dirichlet series with square summable coefficients to solve a problem regarding Riesz bases of $L^2([0, 1])$. In my course, I will survey several (old and new) aspects of the theory of Dirichlet series:

1. In my first talk, I plan to expose the basic theory of Dirichlet series, focusing on the different abscissae of convergence and on their links. The Bohr lift will also be exposed.

2. My second lecture will be devoted to the Hardy spaces of Dirichlet series.

3. In my last talk, I will discuss some classes of operators acting on the Hardy spaces of Dirichlet series.