

Minicourse by Professor Kristian Seip
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Dirichlet Series and Analysis on Polydiscs

Summary. Rudin's classic treatise "Function Theory in Polydiscs" from 1969 studies complex analysis on polydiscs starting from the following question: How much of our extremely detailed knowledge about holomorphic functions in the unit disc can be carried over to an analogous situation in several variables, namely to polydiscs? A different perspective comes from the work of Bohr and Bohnenblust–Hille several decades earlier; here the main issue is function theory in the infinite-dimensional polydisc, which to a large extent is concerned with the asymptotics of function theory in finite-dimensional polydiscs; this point of view arose in the study of Dirichlet series.

From these classical seeds, a modern theory of Dirichlet series and analysis on polydiscs has evolved over the past two decades. In these lectures, I will try to give an overview of the different elements of this theory, covering as much as time permits. Detailed key words for the three days of two one-hour lectures are as follows.

- Day I (Tuesday, July 1, 2014, at 11:00): **Basics of Dirichlet Series and Function Theory in the Polydisc**
Abcissas of convergence, the Bohr lift, boundary values, zero sets, interpolating sequences, the Bohnenblust–Hille inequality
- Day II (Thursday, July 3, 2014, at 11:00): **Operator Theory on Hardy spaces of Dirichlet Series**
Multiplier algebras, Riesz projections, Hankel forms, composition operators, an embedding problem
- Day III (Monday, July 7, 2014, at 14:30 - to be confirmed): **Interaction with Number Theory**
The Sidon constant for Dirichlet polynomials, GCD sums and matrices, norm estimates consistent with conjectures for moments of the Riemann zeta function.

LECTURE ROOM: 520, MOD. 17 (MATHEMATICS), UAM

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