Minicourse by Professor Kristian Seip  
(NTNU, Trondheim, Norway)

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
  Abscissas 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.

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