

The de Branges theory of Hilbert spaces of entire functions and its applications to spectral theory of differential operators

The course is addressed to PhD students. The prerequisites for the course include a good knowledge of complex analysis and of spectral theory of selfadjoint operators. The duration of the course 16–20 hours.

- **Program:** Growth theory of entire functions. De Branges spaces. Canonical systems and their special cases (Jacobi matrices, Schrödinger operators). Direct spectral theory of canonical systems. De Branges version of Phragmén–Lindelöf theorem. Ordering theorem for de Branges spaces. Inverse spectral theory in the regular case. Direct and inverse spectral problems in the singular case.

- **References:**

L. de Branges, *Hilbert Spaces of Entire Functions*, Prentice–Hall, Englewood Cliffs, 1968.

B.Ya. Levin, *Lectures on Entire Functions*, Transl. Math. Monogr. Vol. 150, AMS, Providence, RI, 1996.

R. Romanov, *Canonical systems and de Branges spaces*, arXiv:1408.6022.