Introduction to Interpolation Theory 2 – summer semester 2024 - 2025Information about the exam

The exam will be oral and can be held either in English or in Czech, depending on the preference of the student. Please contact me in order to schedule a time for your exam.

The exam will consist of two questions (two theorems covered in class). You will be asked to state these theorems and to prove one or both of them (depending on the difficulty of the proofs). Emphasis will be put on the understanding of the basic idea of the proof, rather than on technical details. You may also be asked to illustrate the statement of a theorem with an example.

A list of theorems required for the exam is stated below.

- 1. Sum and intersection of Banach spaces forming a compatible couple
- 2. K-functional for the pair (L^1, L^∞)
- 3. Characterization of the Gagliardo completion
- 4. K-functional for the pair of Gagliardo completions
- 5. Interpolation spaces for the couple (L^1, L^{∞})
- 6. Admissible operator: estimate for the K-functional
- 7. Admissible operator: boundedness between interpolation spaces
- 8. Holmstedt's theorem
- 9. Limiting version of Holdmstedt's theorem
- 10. Reiteration theorem
- 11. Equivalence theorem
- 12. Density theorem
- 13. Multilinear interpolation: weak-type estimate
- 14. Multilinear interpolation: strong-type estimate
- 15. Multilinear interpolation of adjoint operators