

Summer School 2026

Topics in Banach Space Theory

Descriptive set theory in Banach spaces

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| Name | Marek Cúth |
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| Day and time | Monday: 10:20–11:00 Wednesday: 9:10–9:50 Thursday: 10:00–10:40 |

Abstract

Descriptive set theory in Banach spaces has led to a number of interesting results and applications, including: (a) the study of universality problems; (b) the analysis of the complexity of classification problems via Borel reducibility; and (c) the investigation of the complexity of various classes of Banach spaces. After surveying these directions, I will focus primarily on (c), where several new results have recently been obtained. Among the most recent are: (1) a characterization of Banach spaces whose isometry class is G_δ as precisely the guarded Fraïssé spaces—a weakening of the notion of Fraïssé Banach spaces introduced by Ferenczi, Lopez-Abad, Mbombo, and Todorcevic; and (2) the isometric classification of $C(K)$ spaces for K a countable compact space or the Cantor discontinuum, yielding an exact determination of the complexity of their isometry classes.

The talk will be based mostly on joint papers with M. Doucha, N. de Rancourt, M. Doležal, O. Kurka and J. Rondoš.